

FIG. 1A

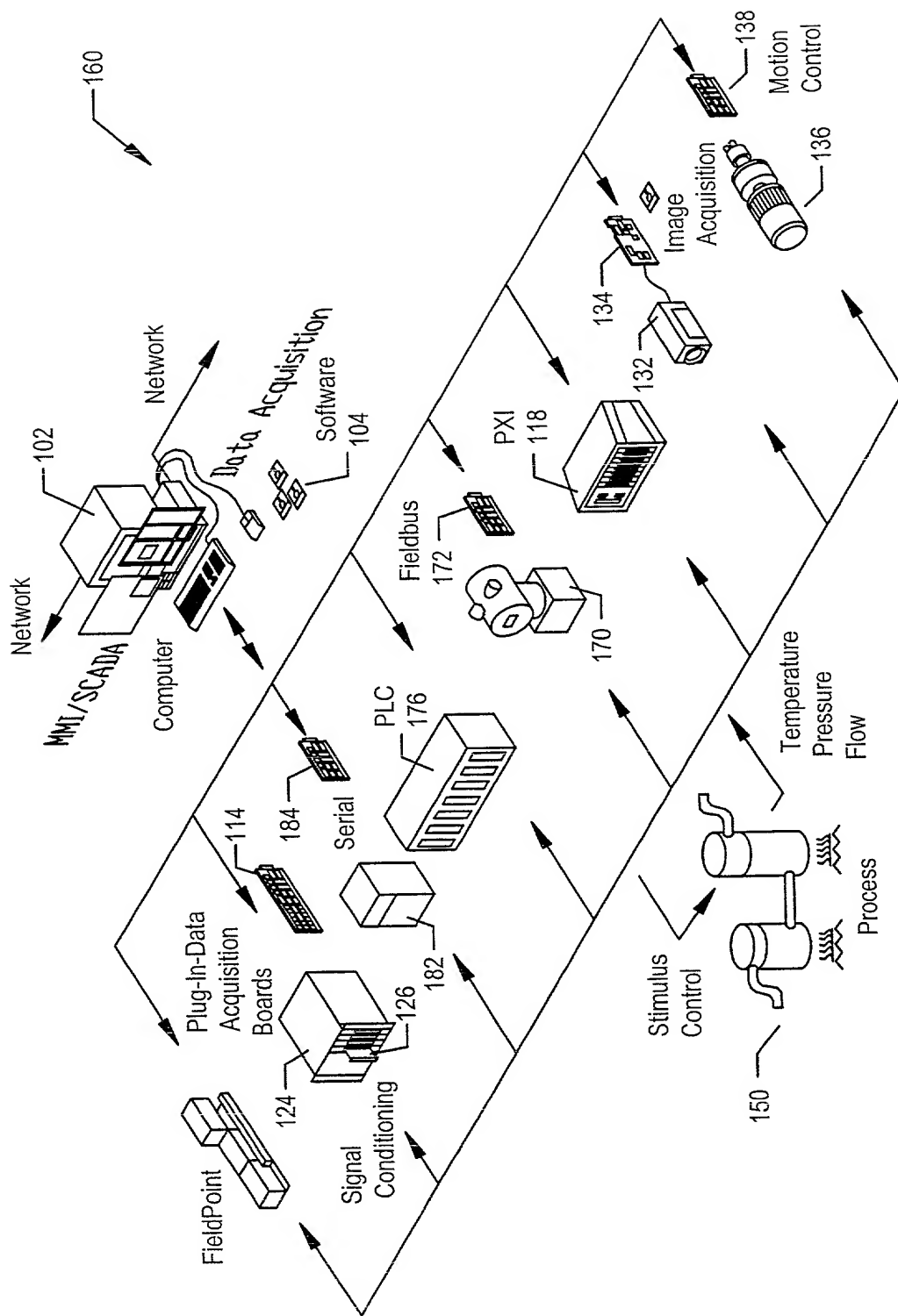


FIG. 1B

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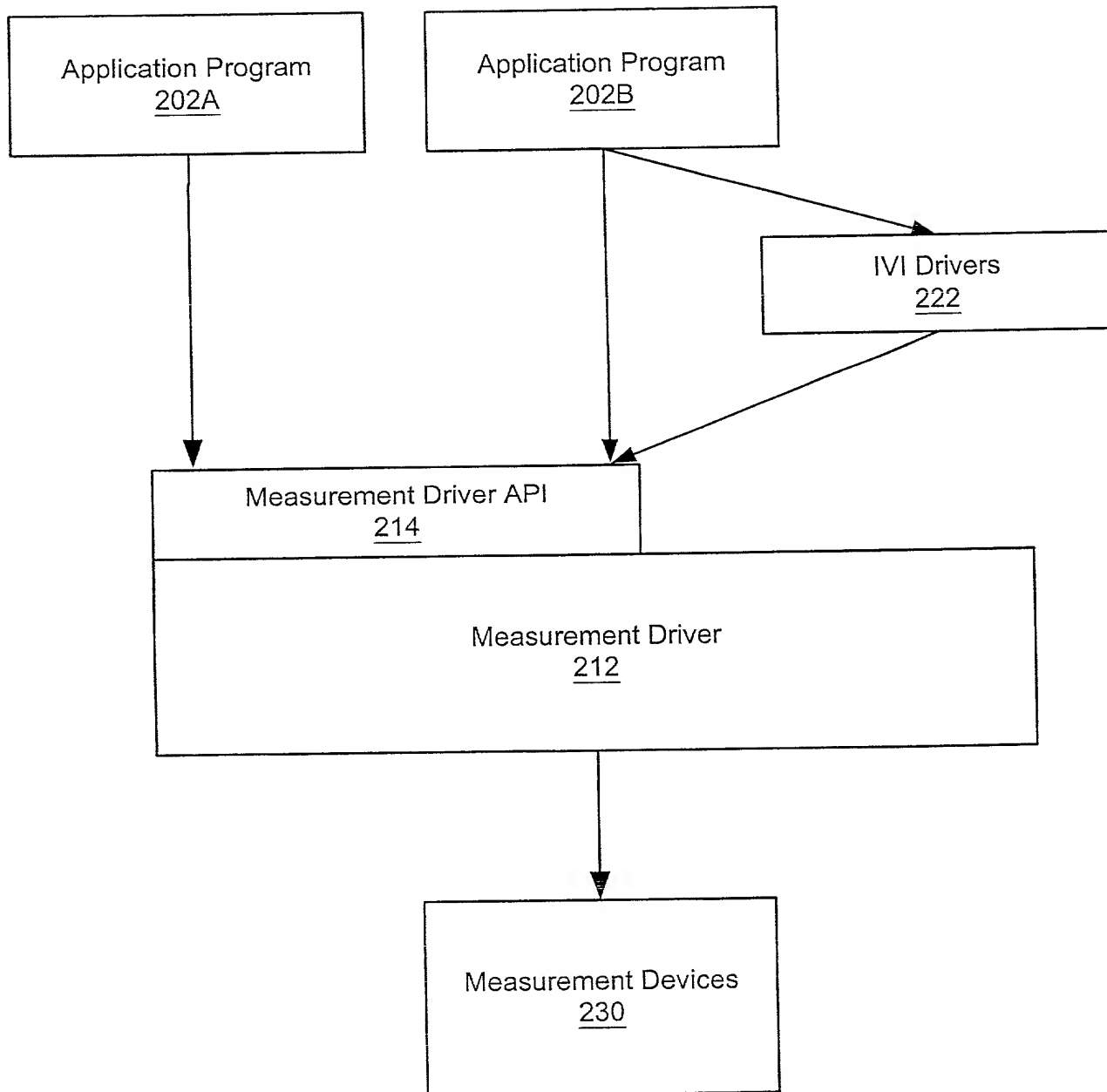


Figure 3

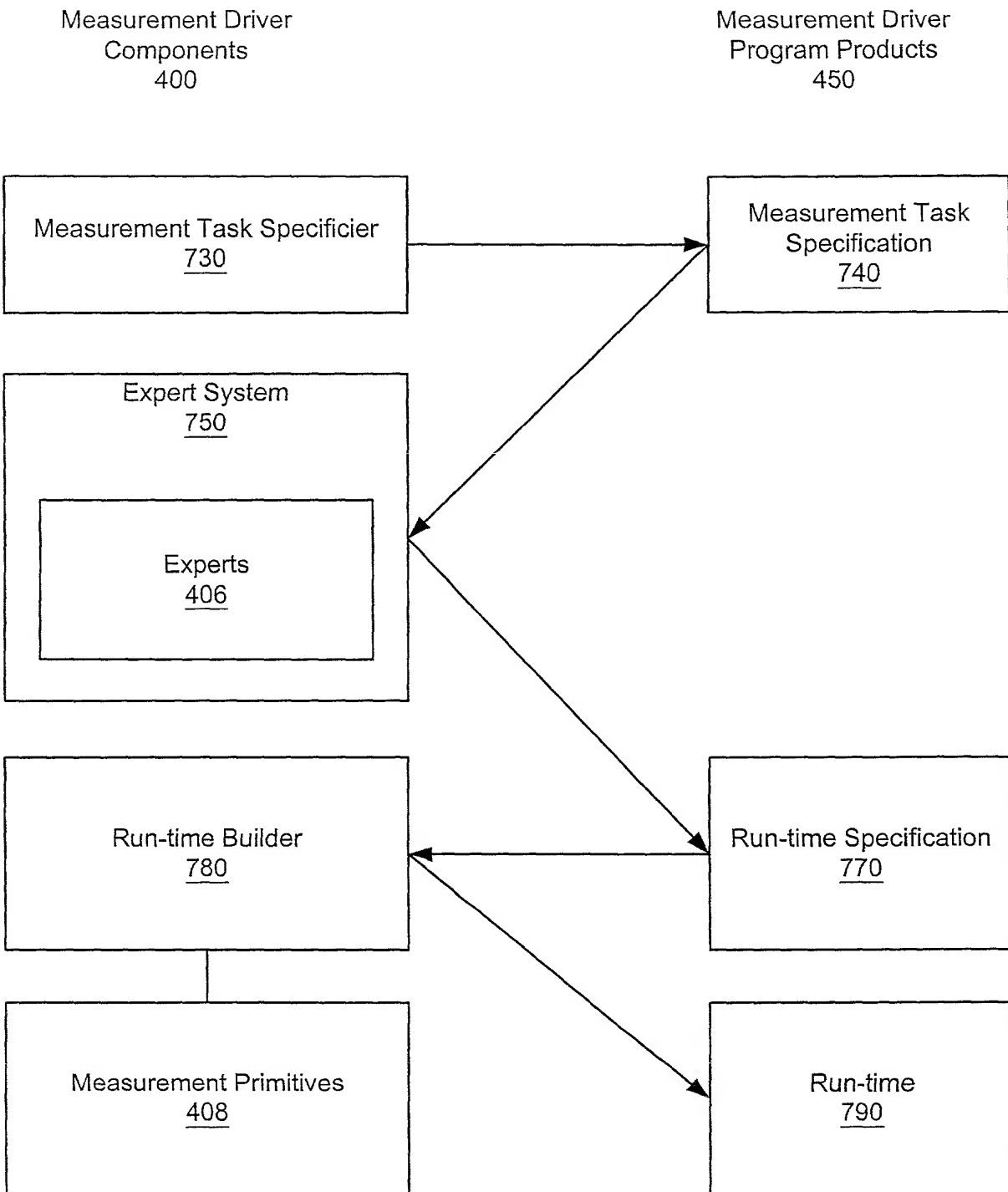


Figure 4

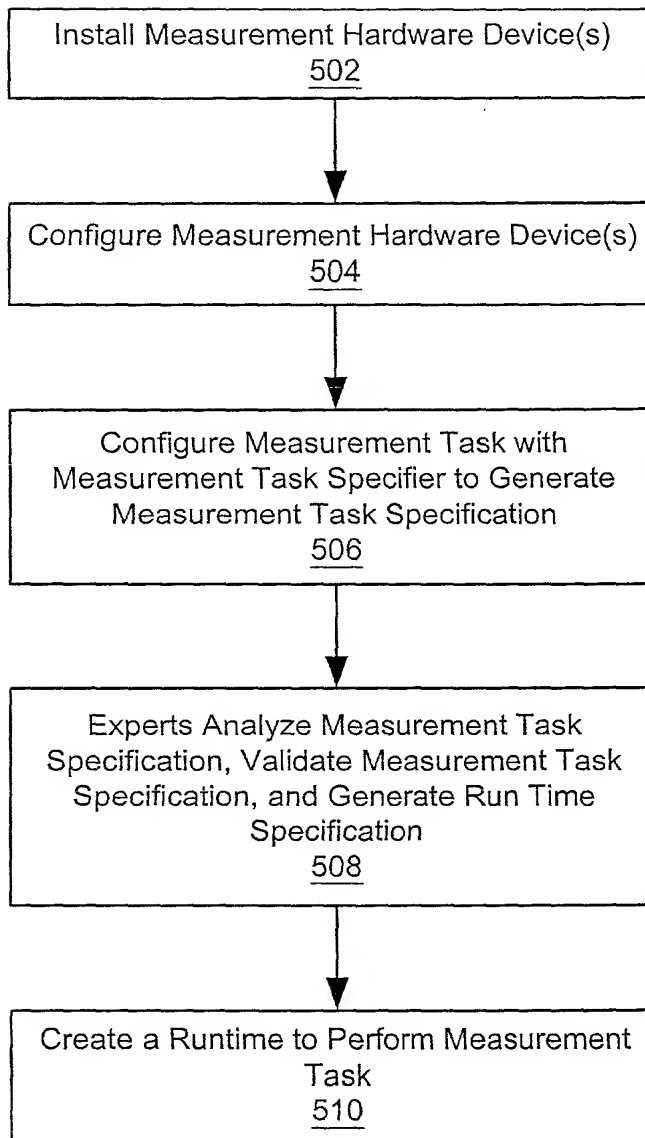
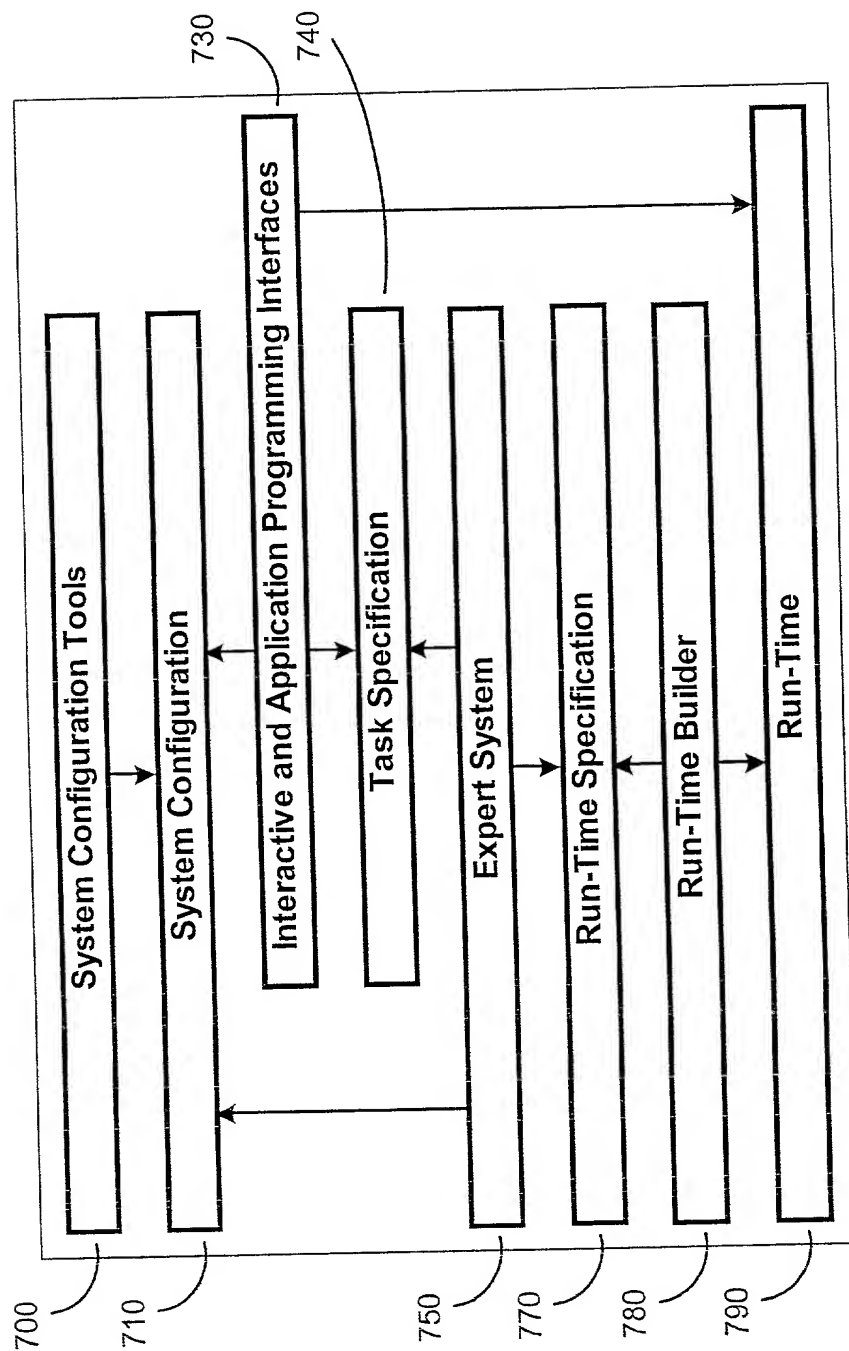


Figure 5



High-Level Architecture

Figure 6

# System Configuration and Task Specification

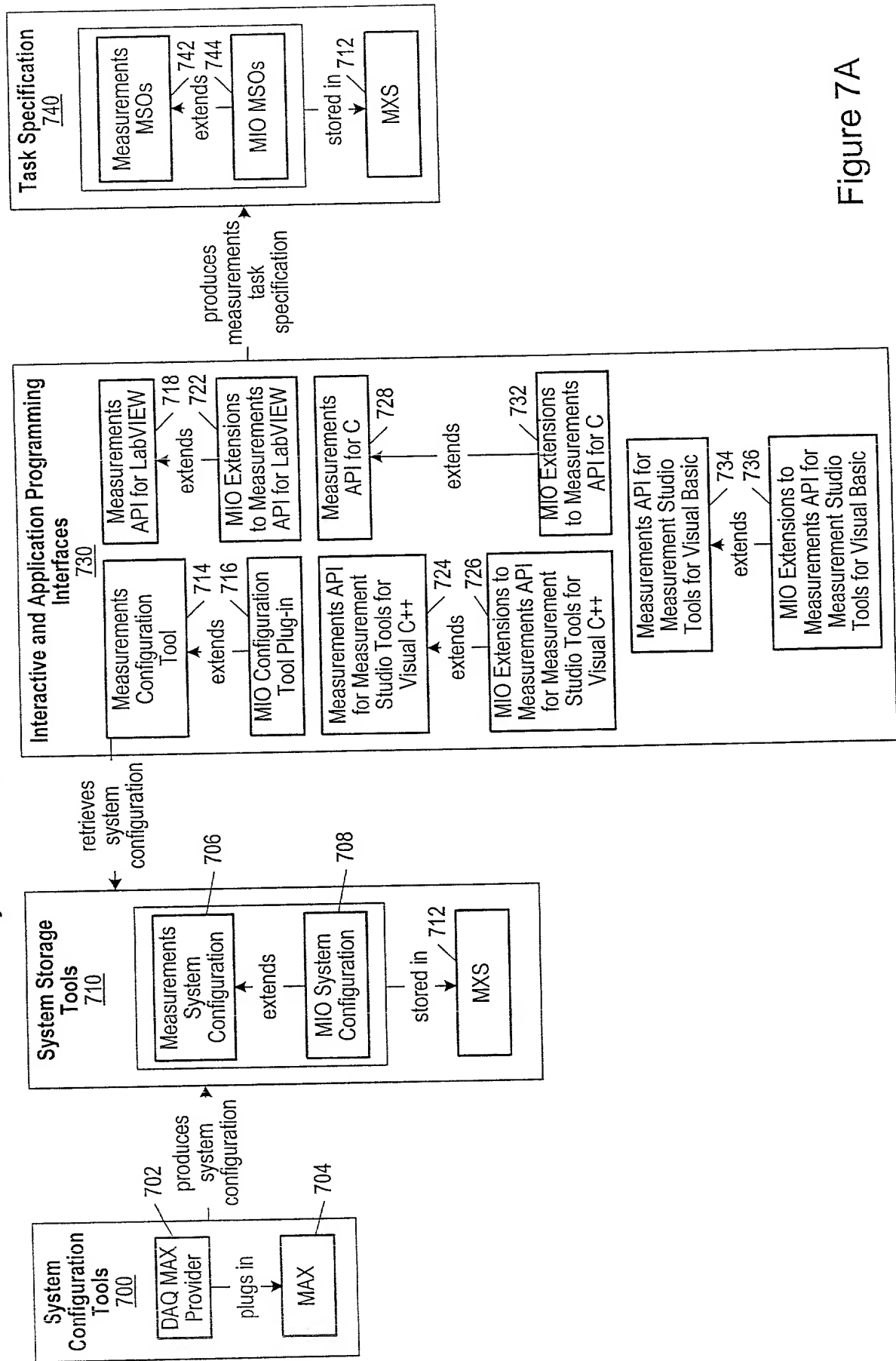


Figure 7A

# Compiling Task Specification to Task Run-time Specification

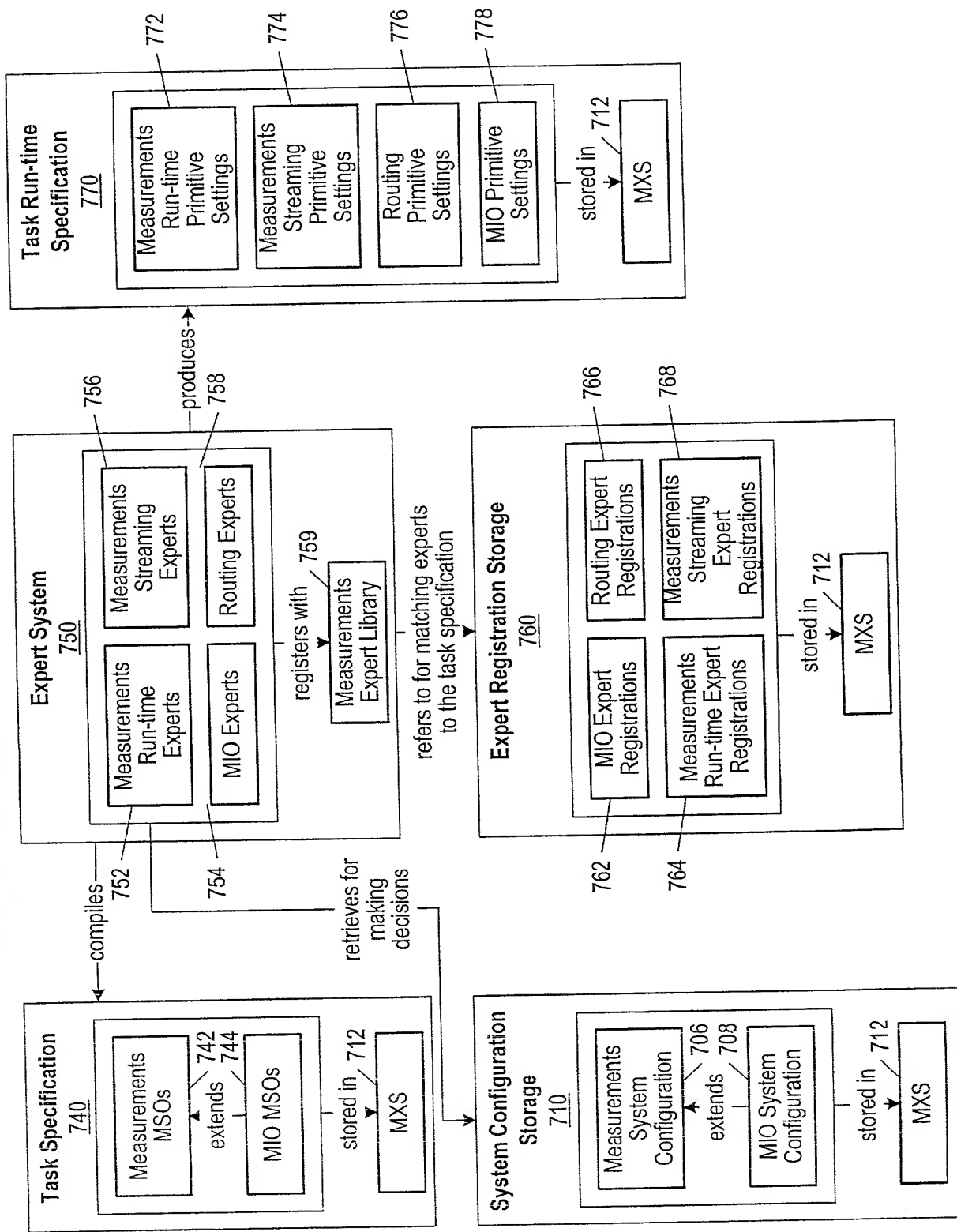


Figure 7B



# Building Task Run-time from Task Run-time Specification

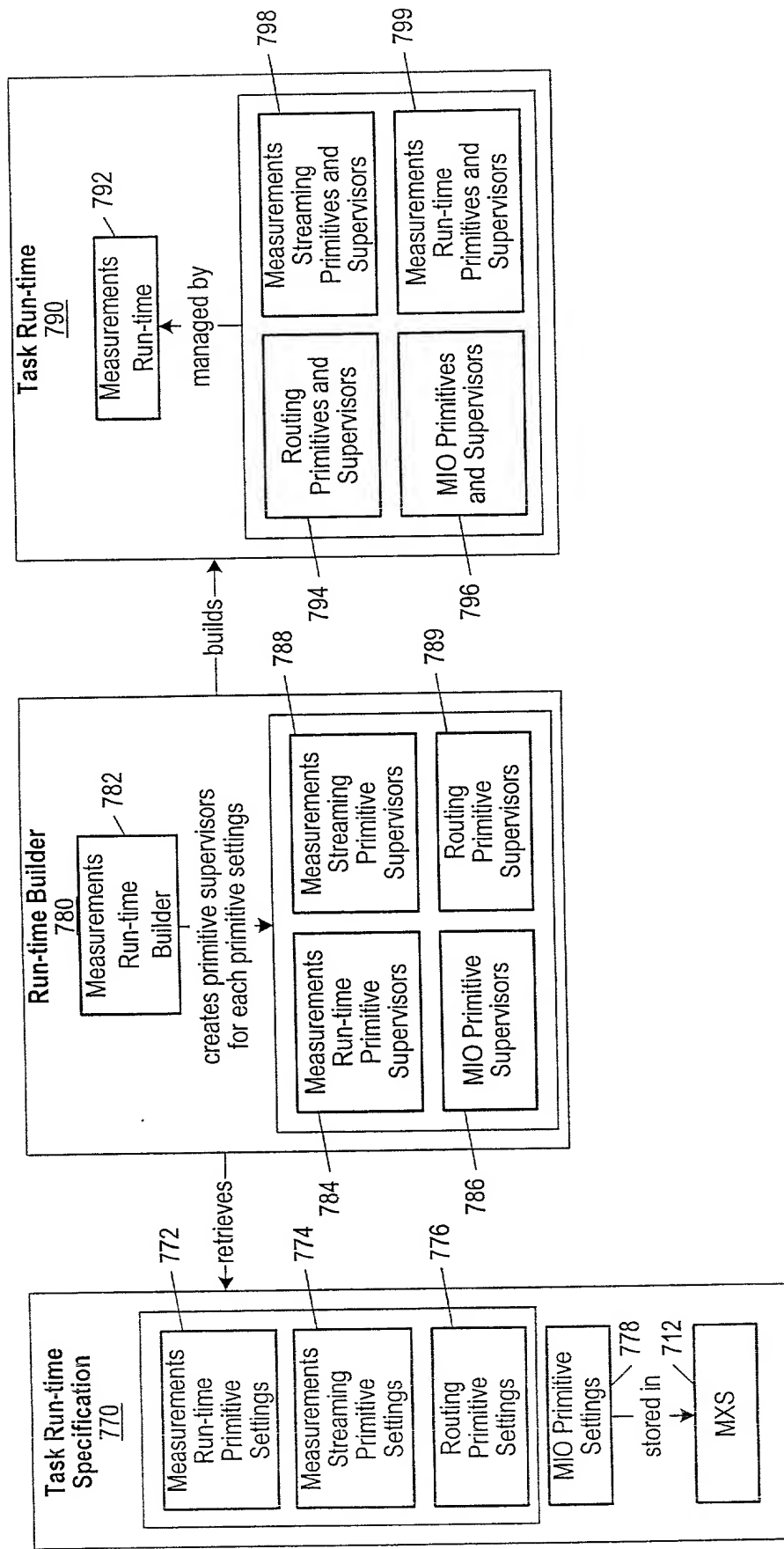


Figure 7C

## Executing Tasks

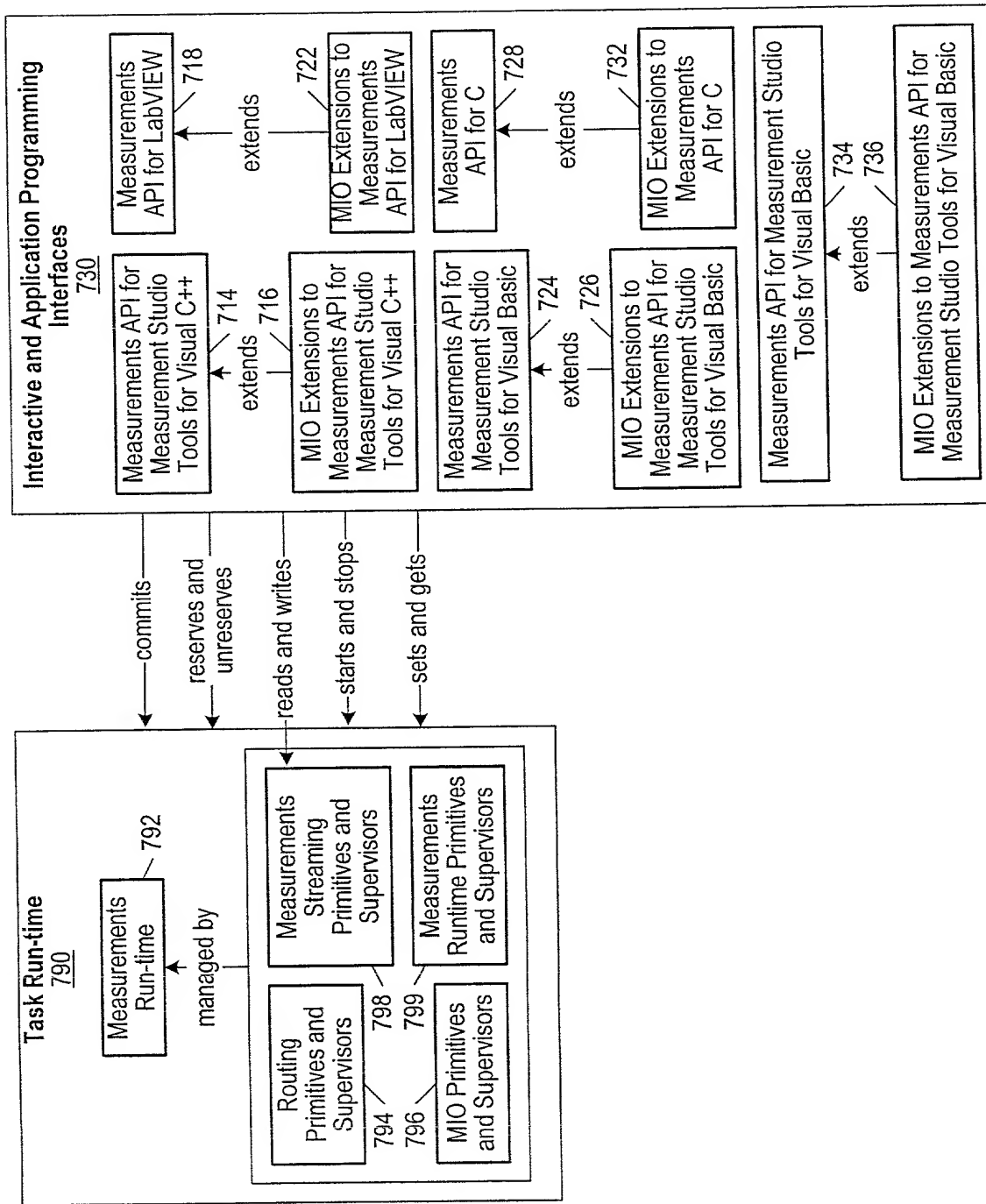


Figure 7D

# Packages for System Configuration and Task Specification

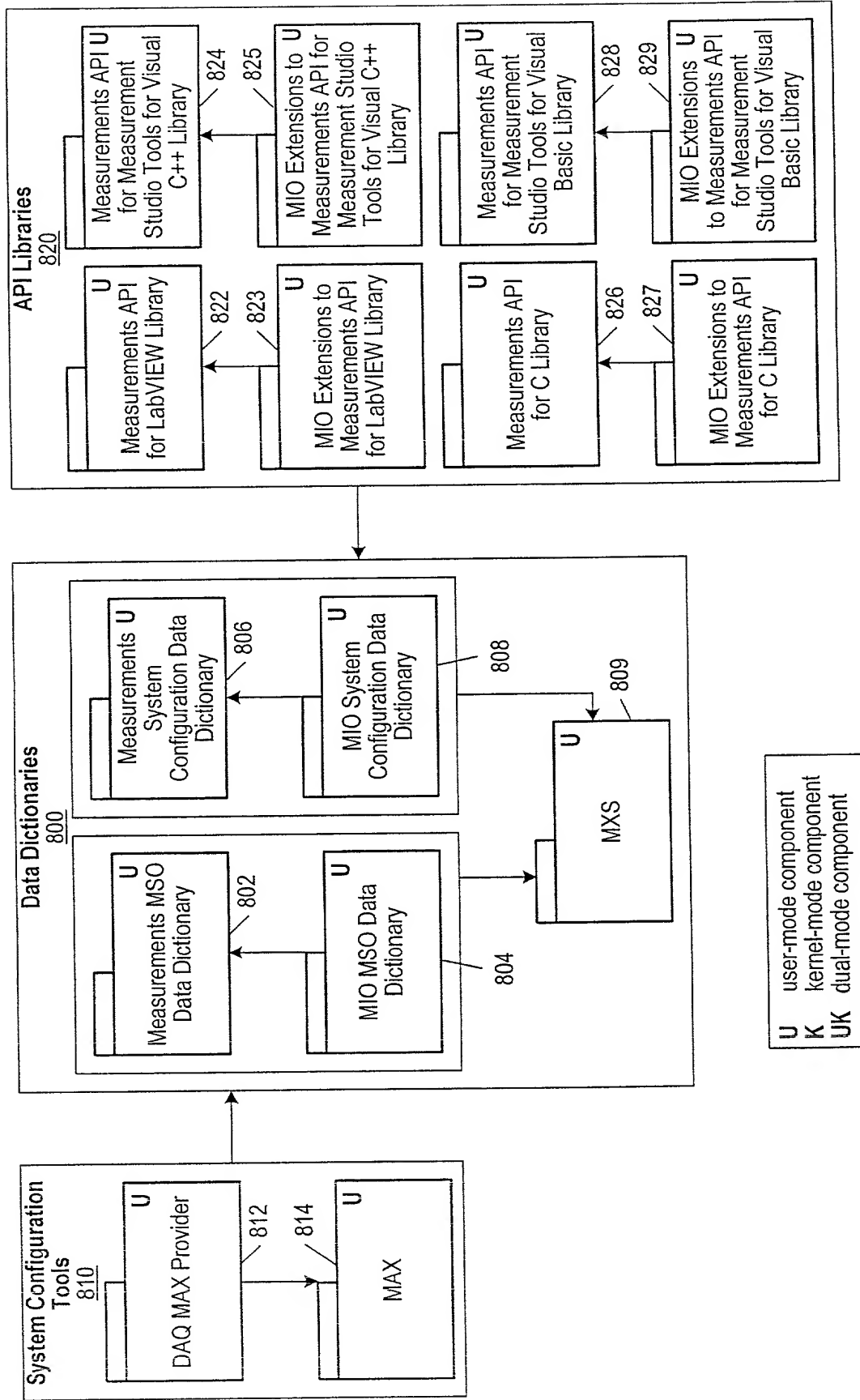


Figure 8A

# Packages for Compiling Task Specification to Run-time Specification

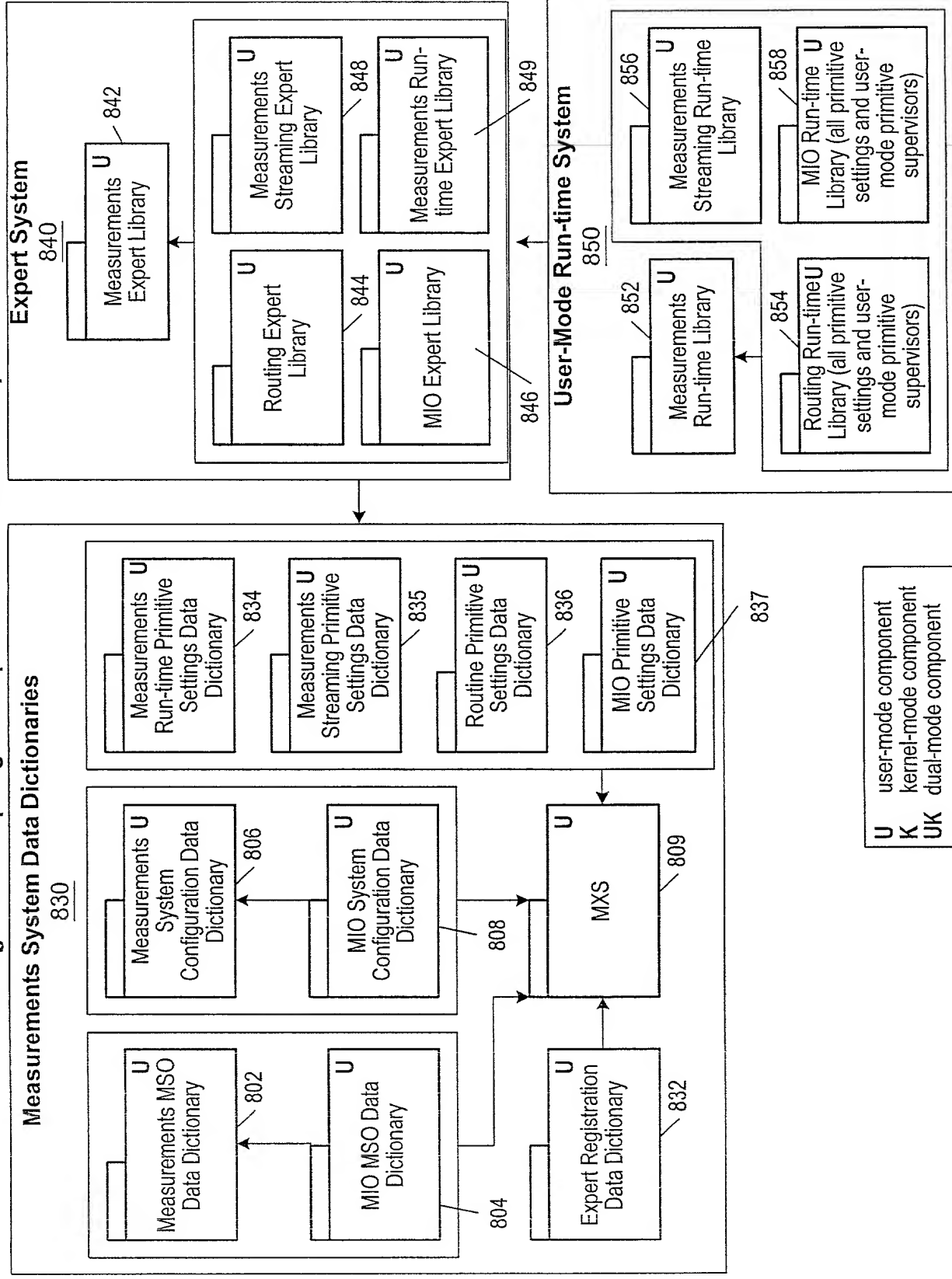


Figure 8B

Packages for Building Task Run-time from Run-time Specification

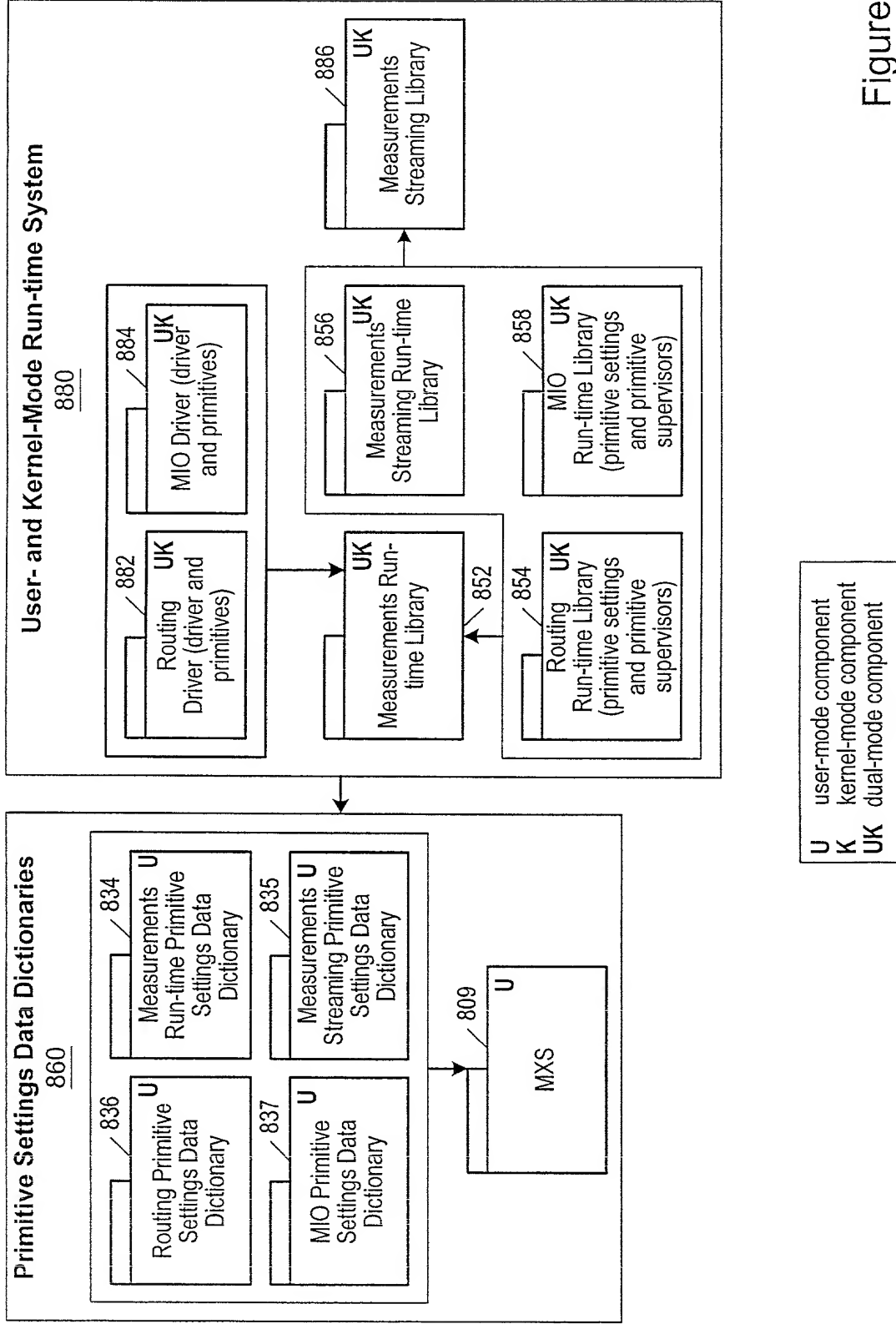


Figure 8C

### Packages for Executing Task Run-time

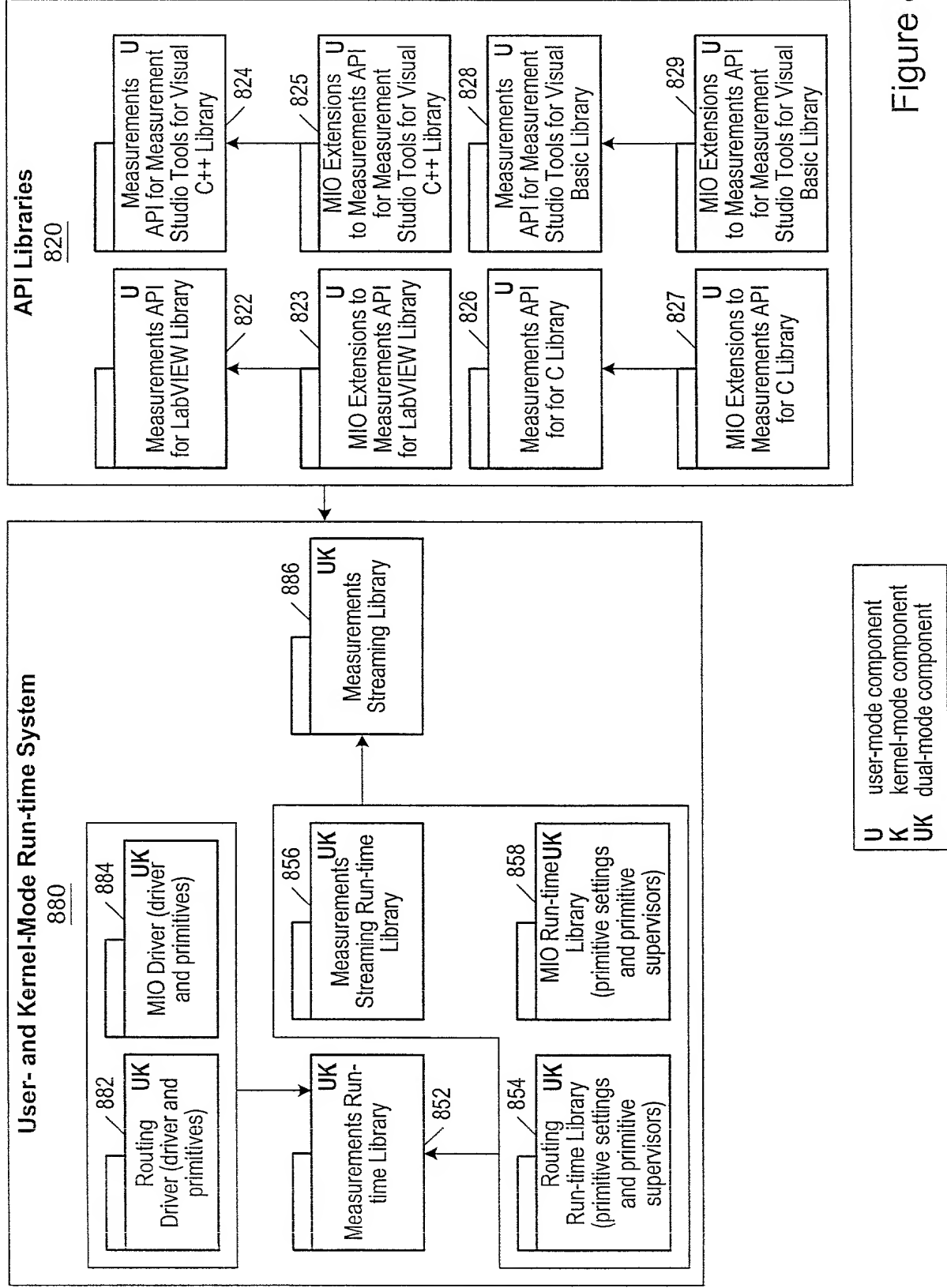


Figure 8D

## State Diagram for Measurement Tasks

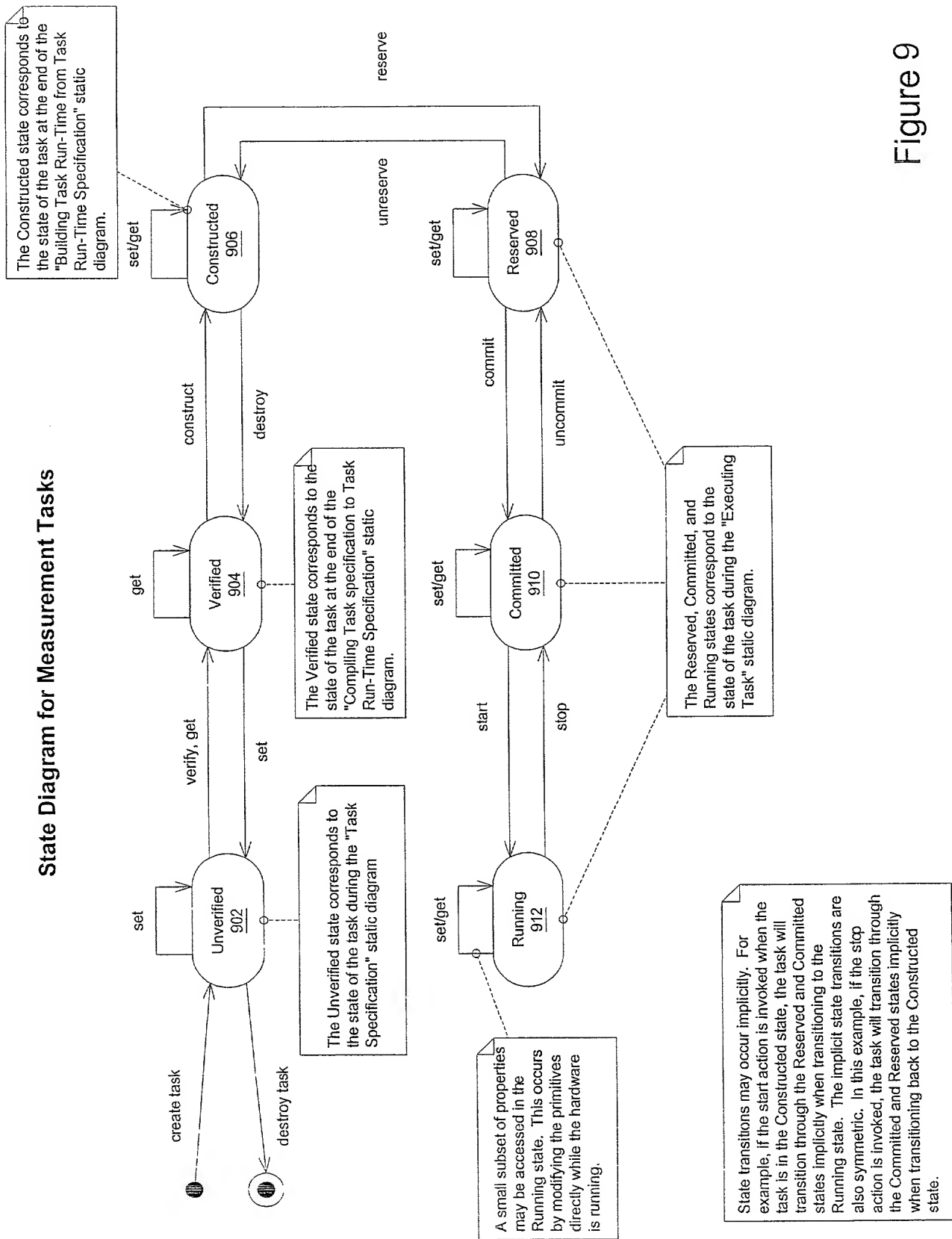


Figure 9

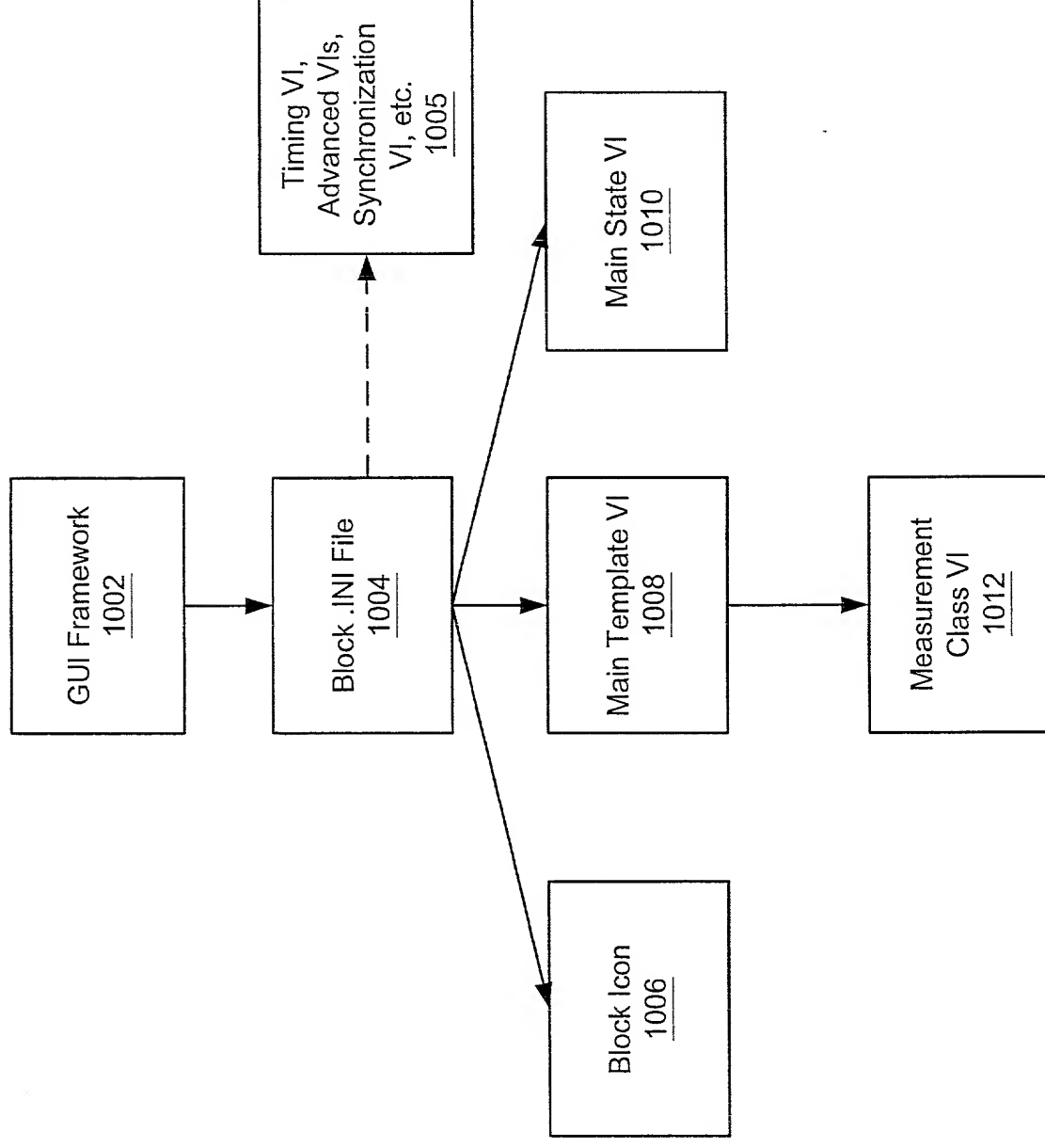


Figure 10



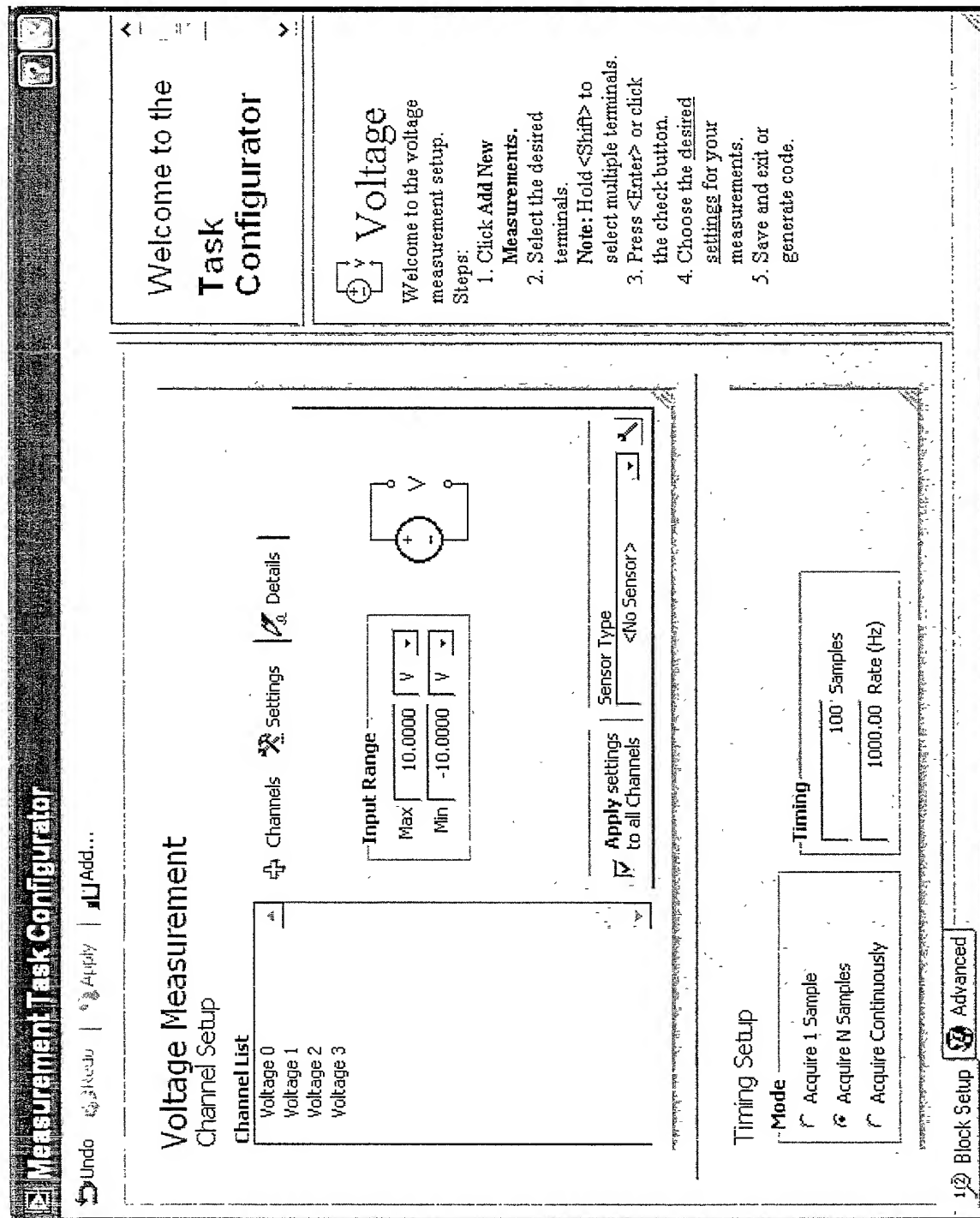


Figure 11

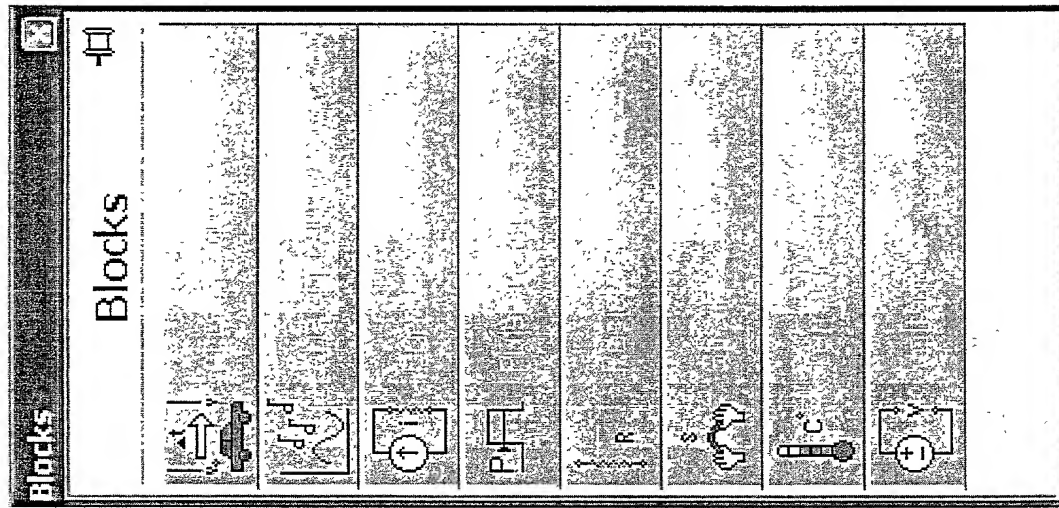


Figure 12A

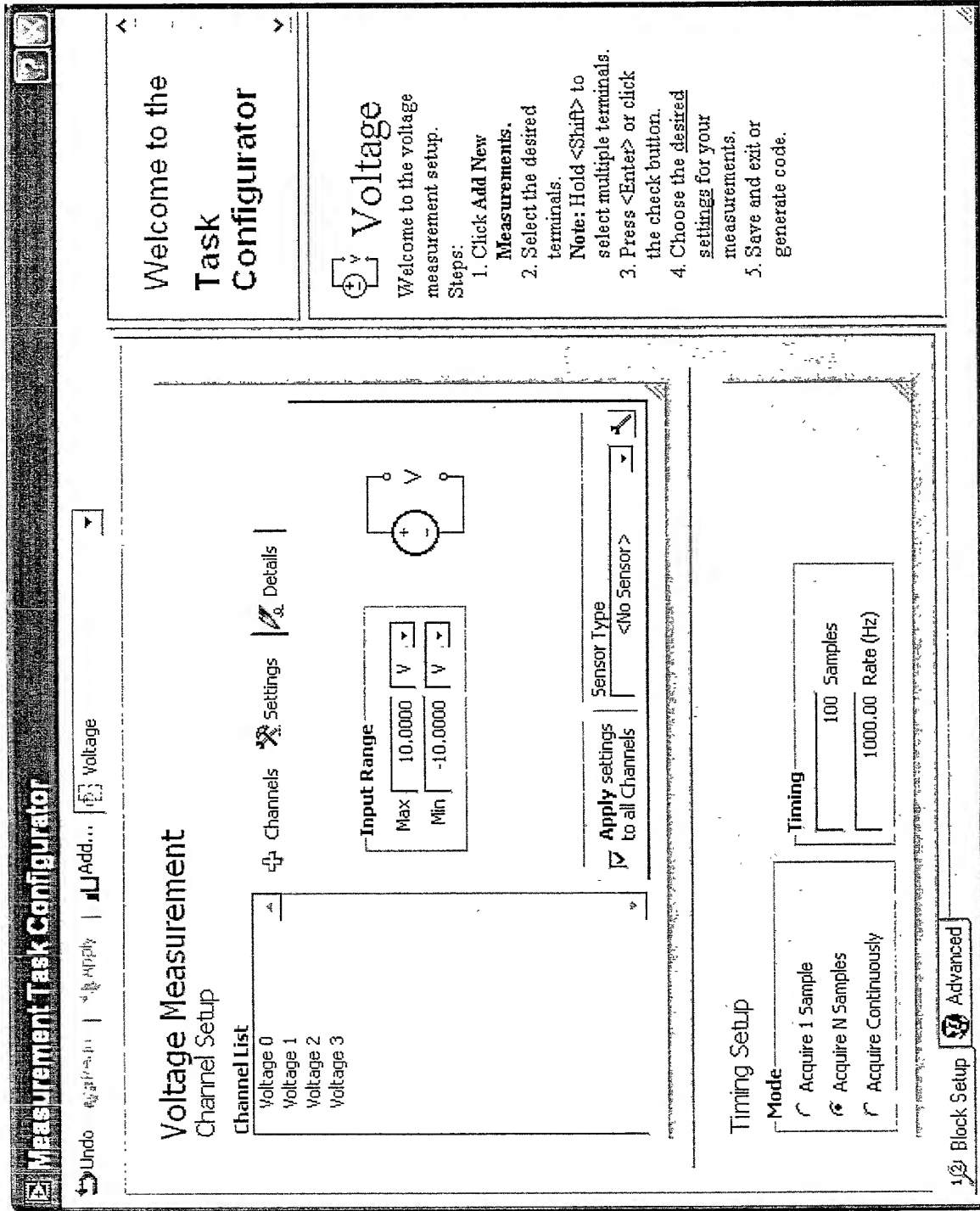


Figure 12B

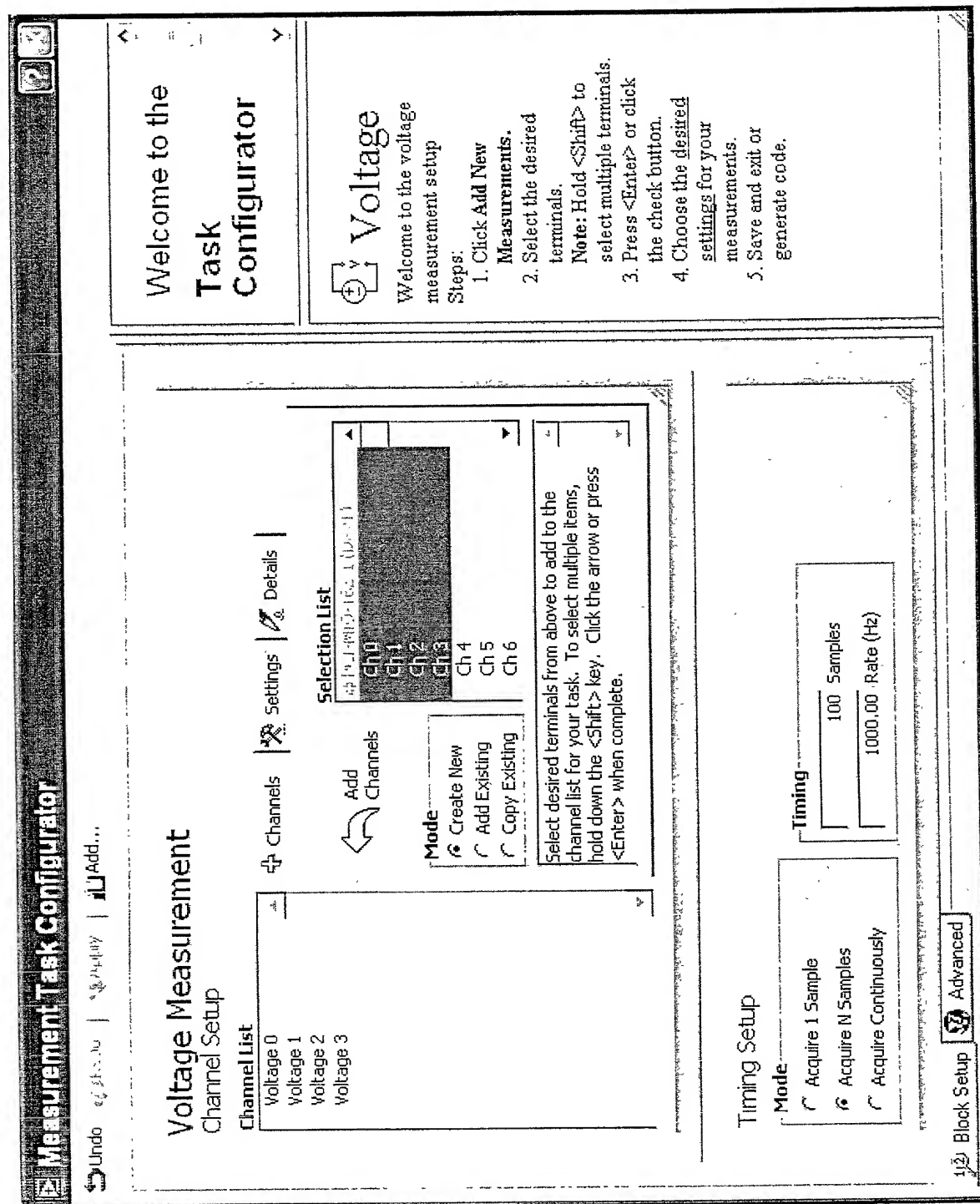


Figure 12C

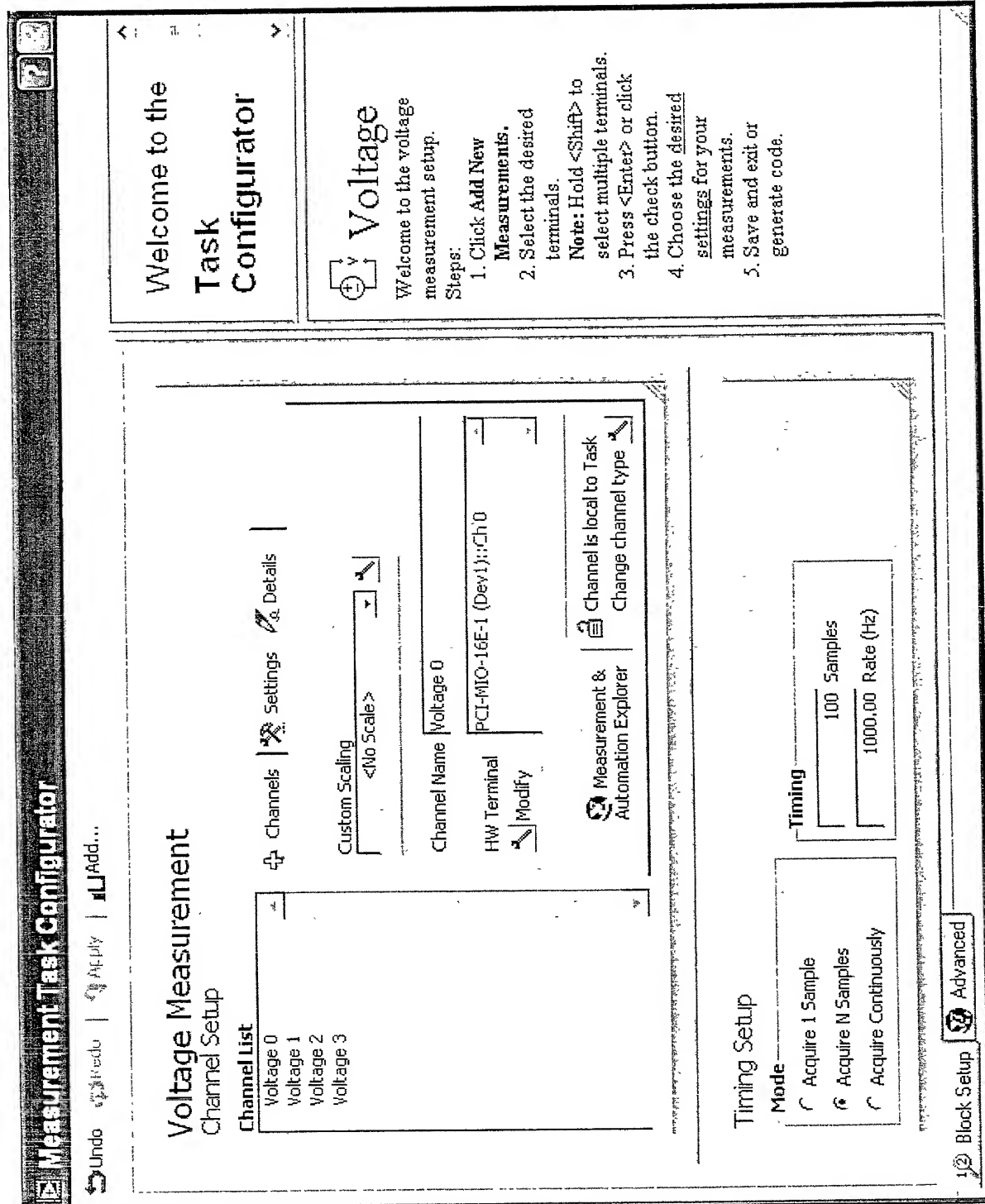


Figure 12D

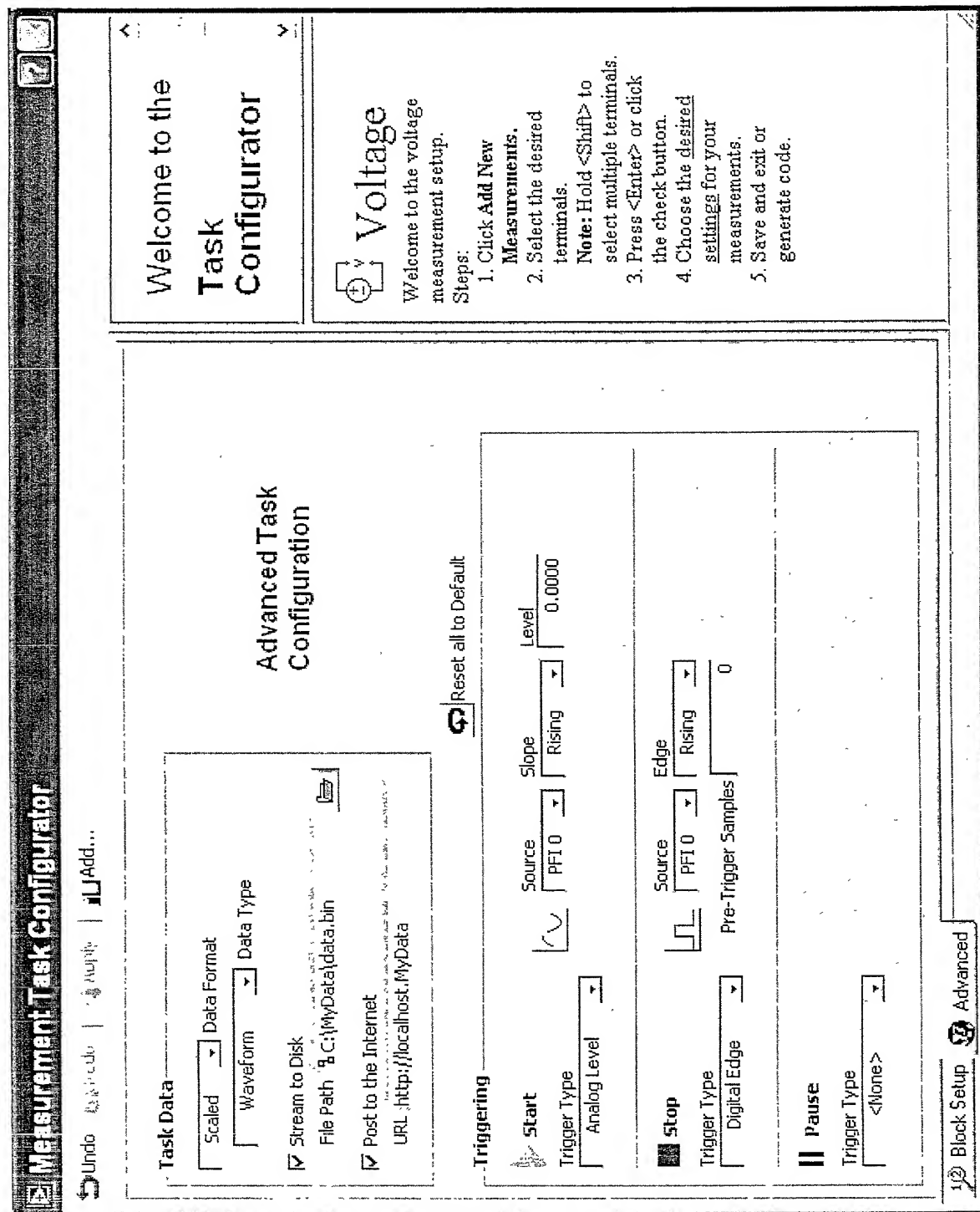


Figure 13

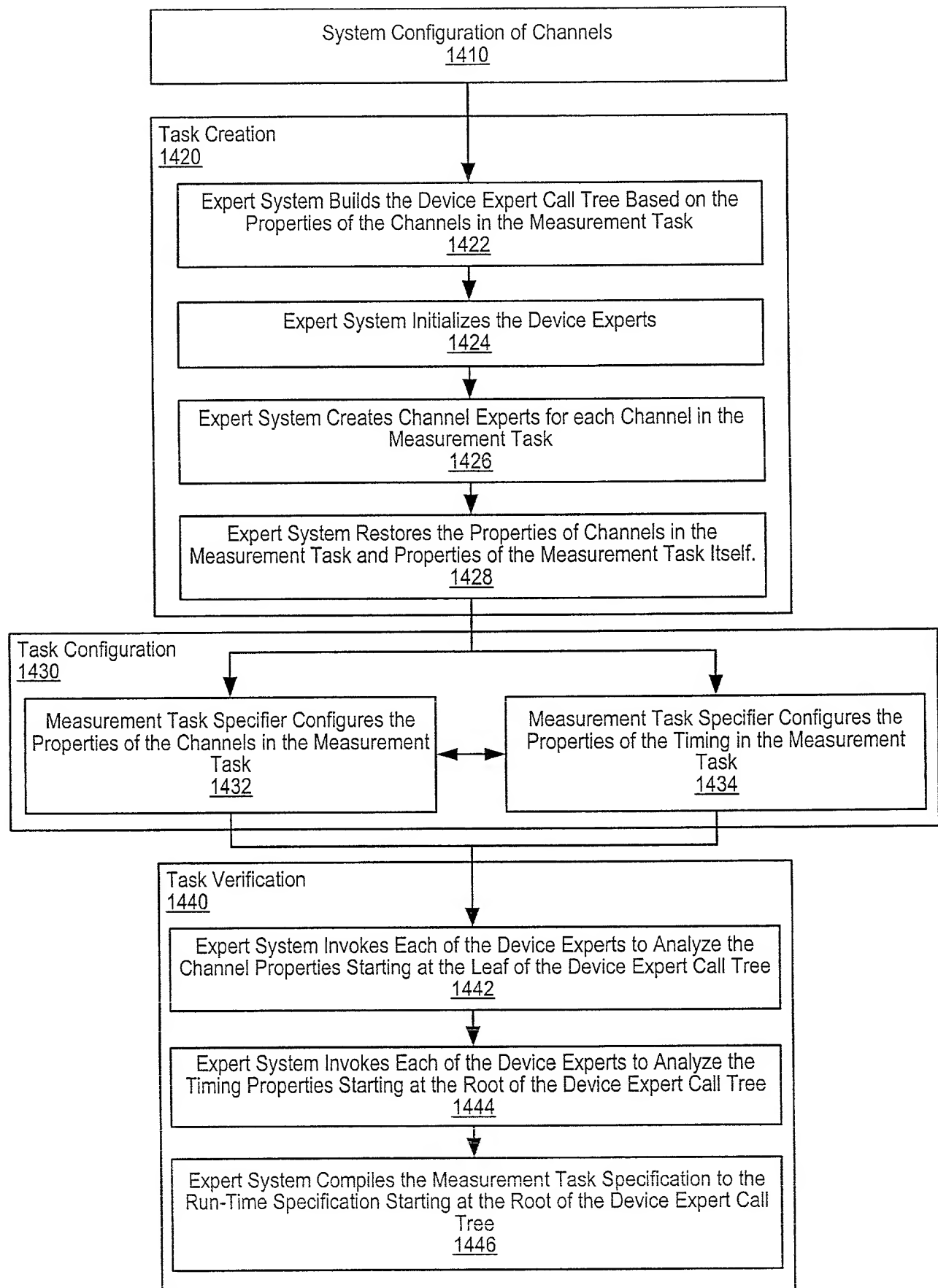


Figure 14

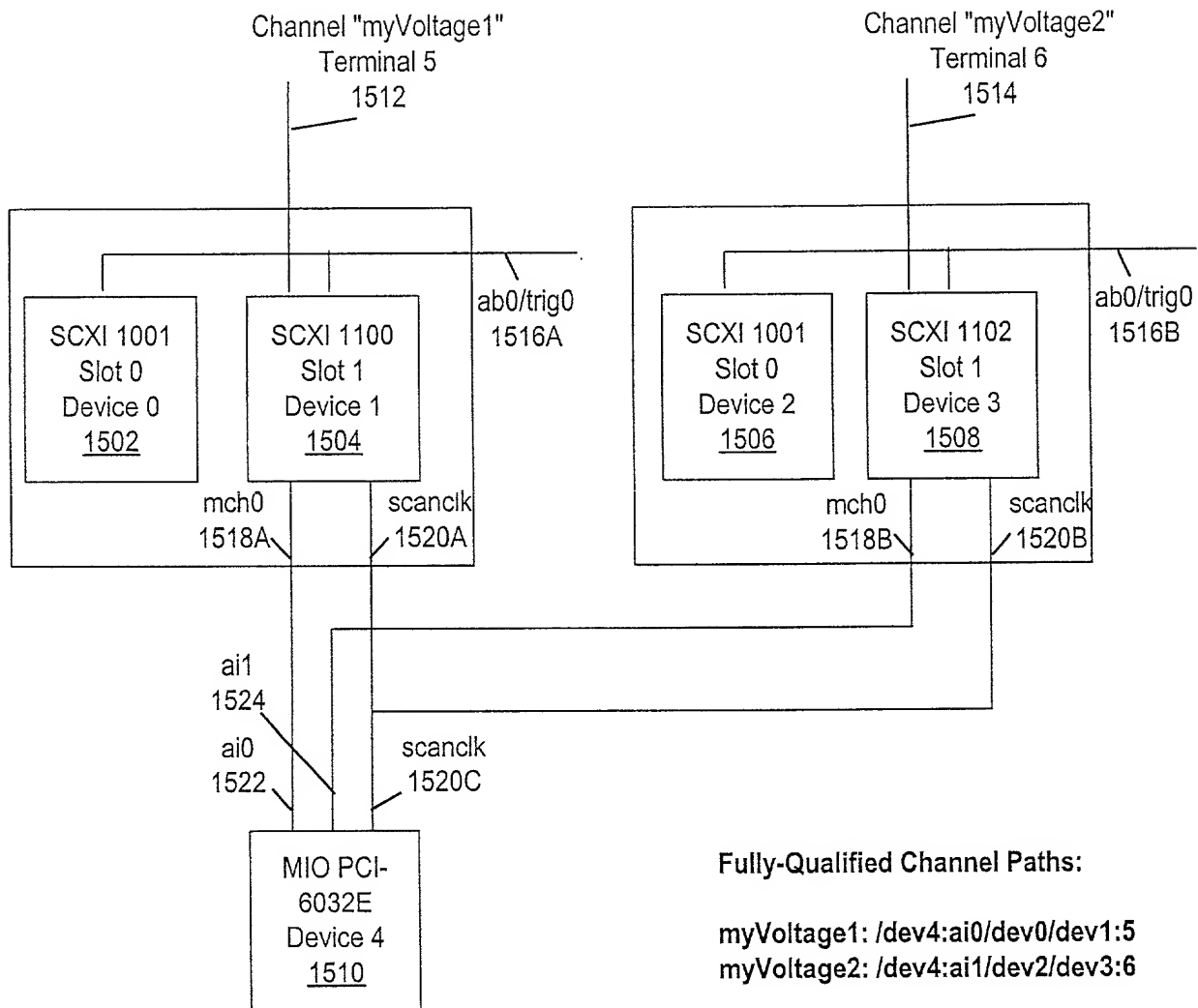
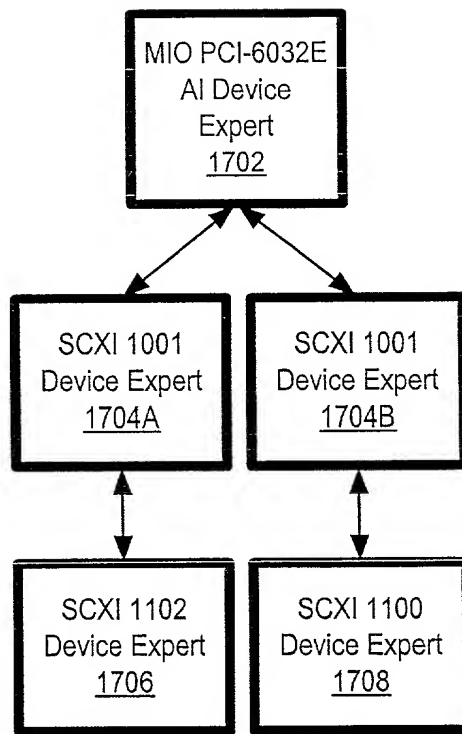


Figure 15







Create Device Expert Call Tree

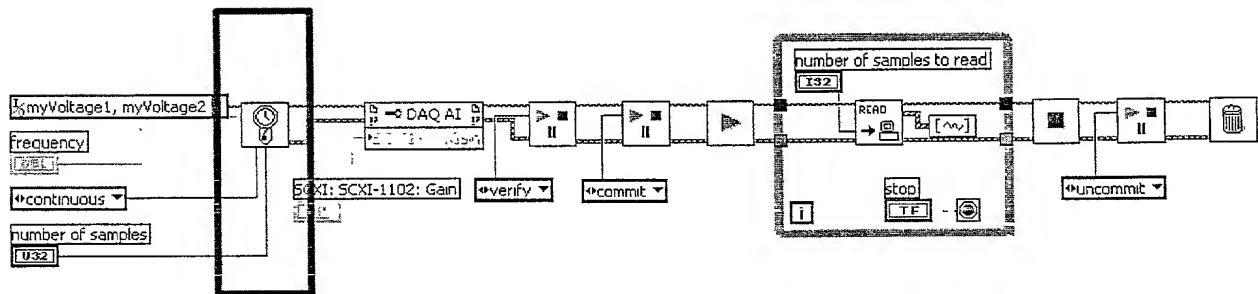
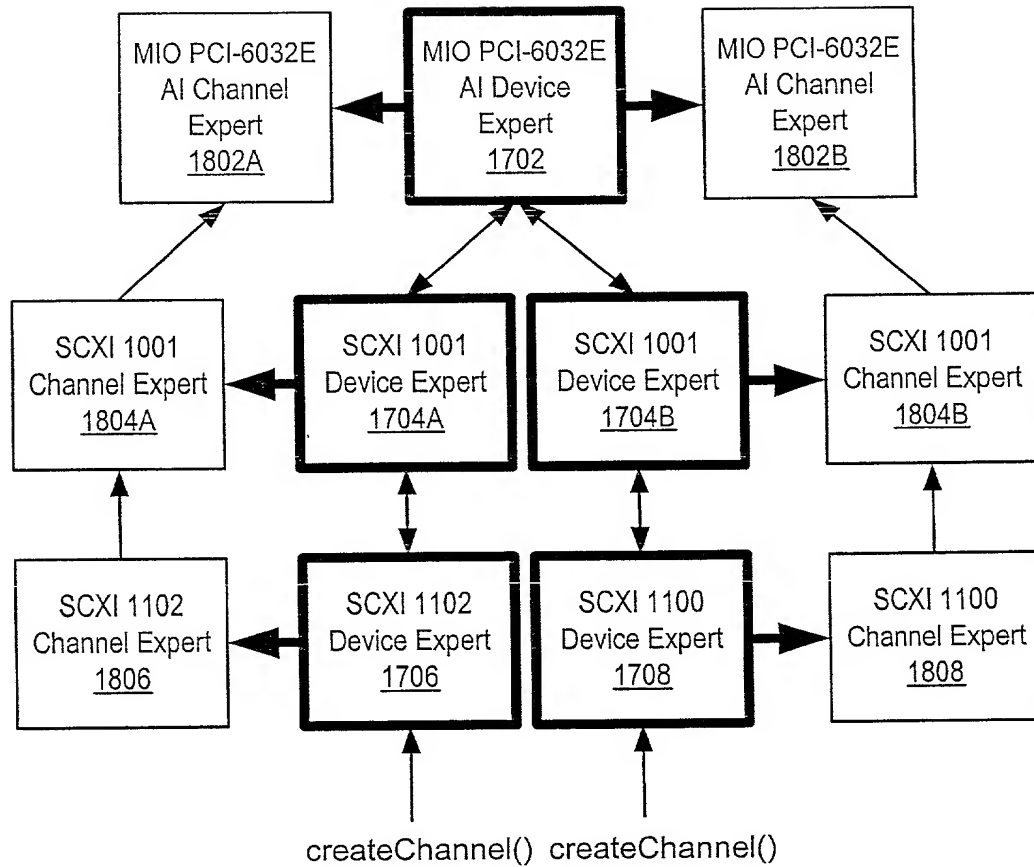


Figure 17



Create Channel Experts

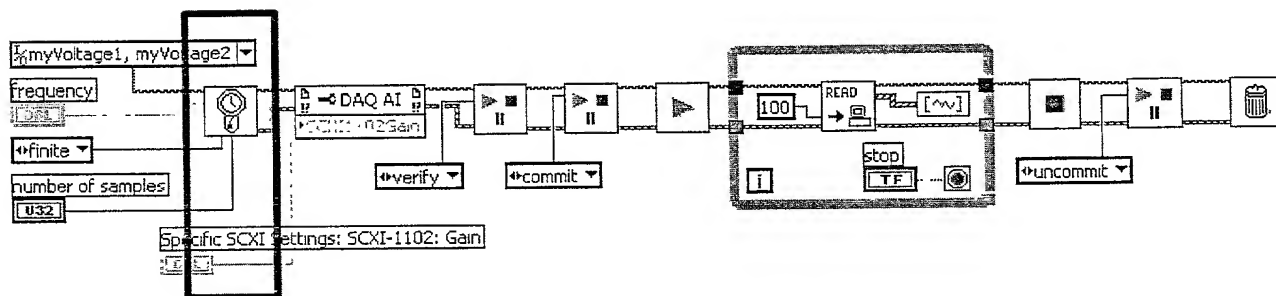
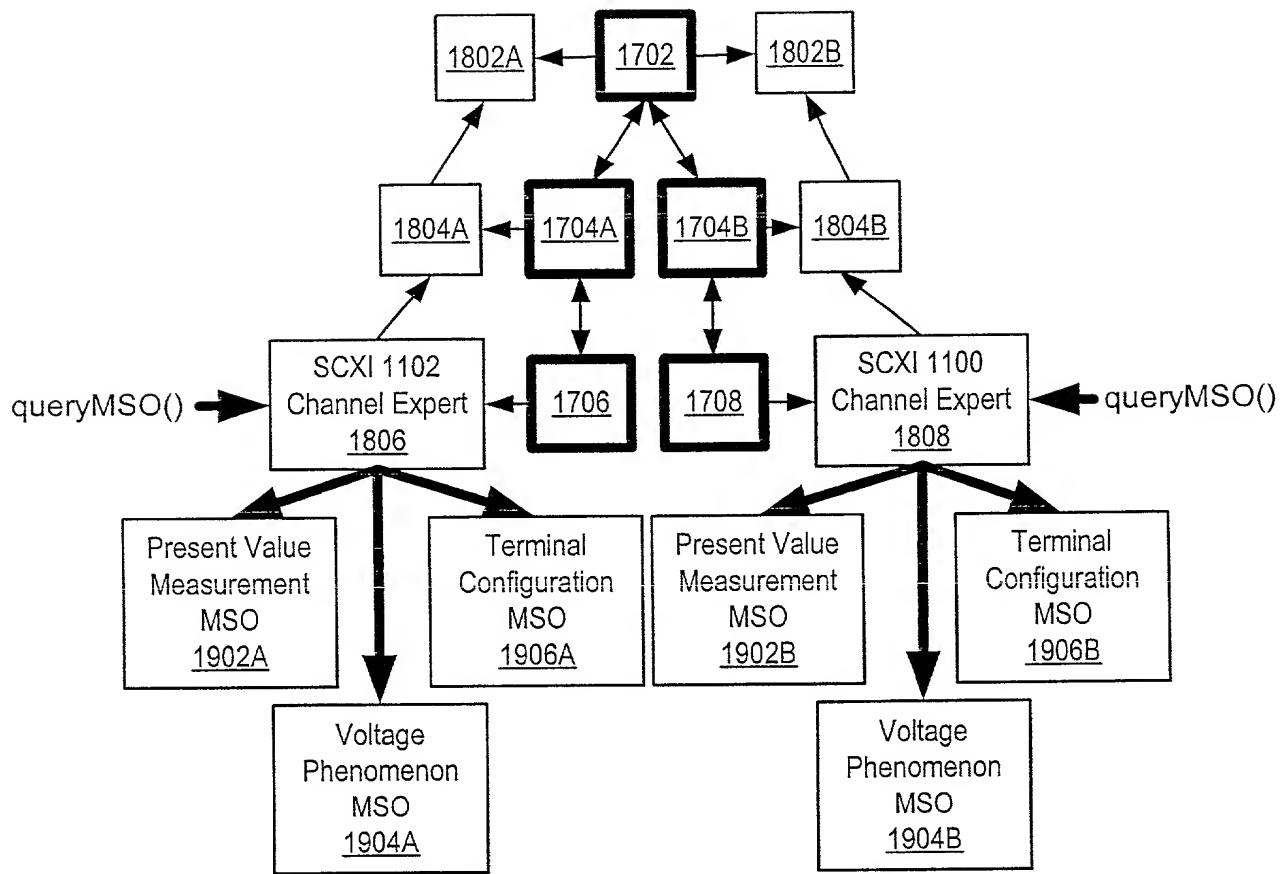


Figure 18



Deserialize Named Channel MSOs

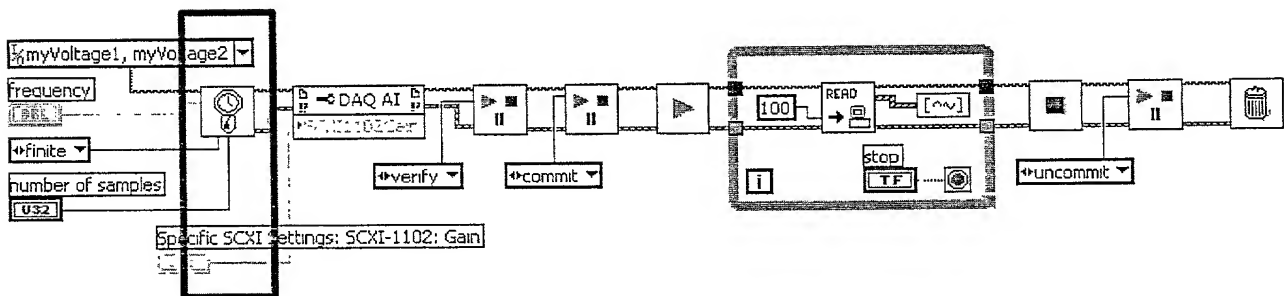
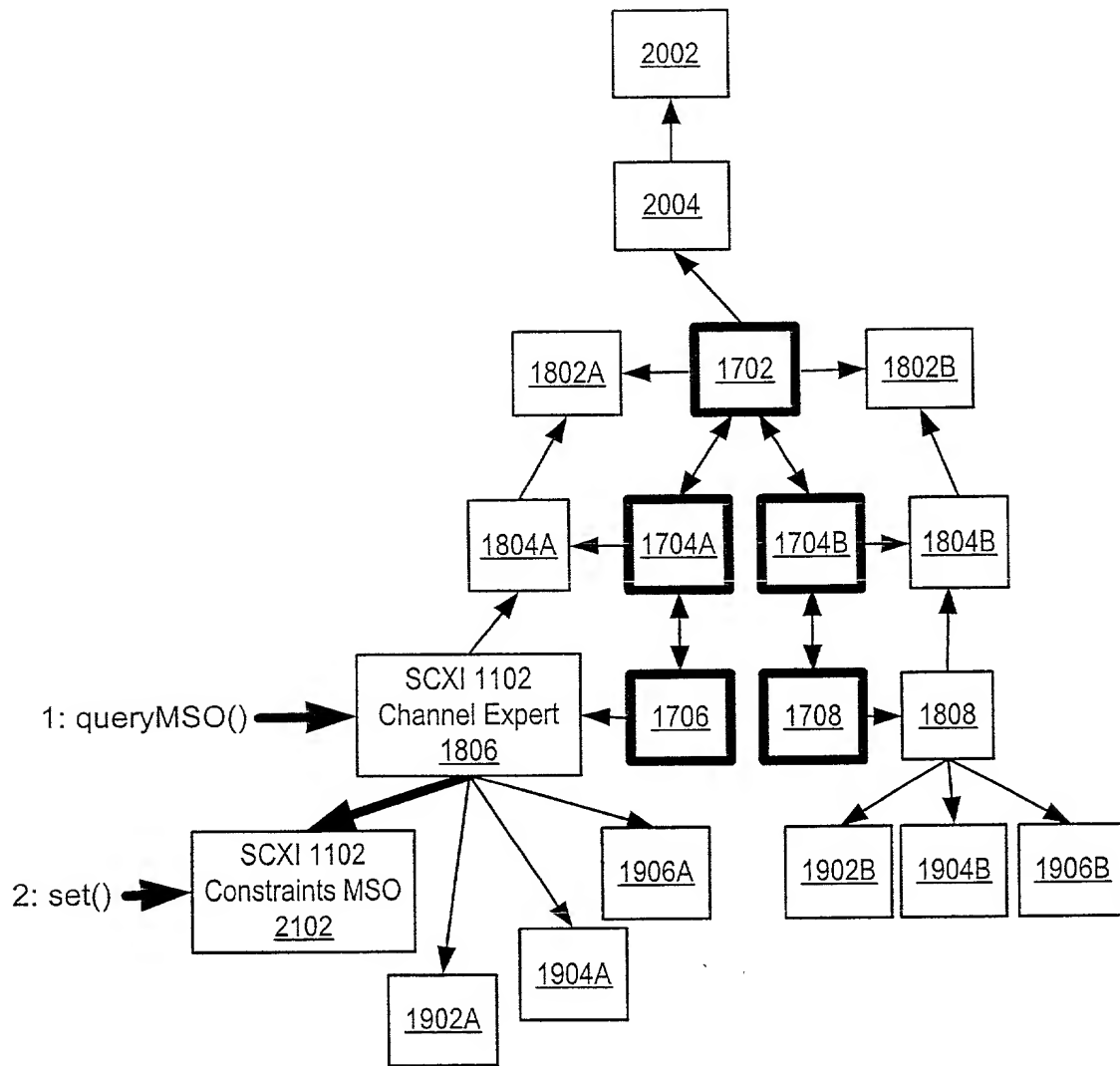


Figure 19





MSO Set Calls

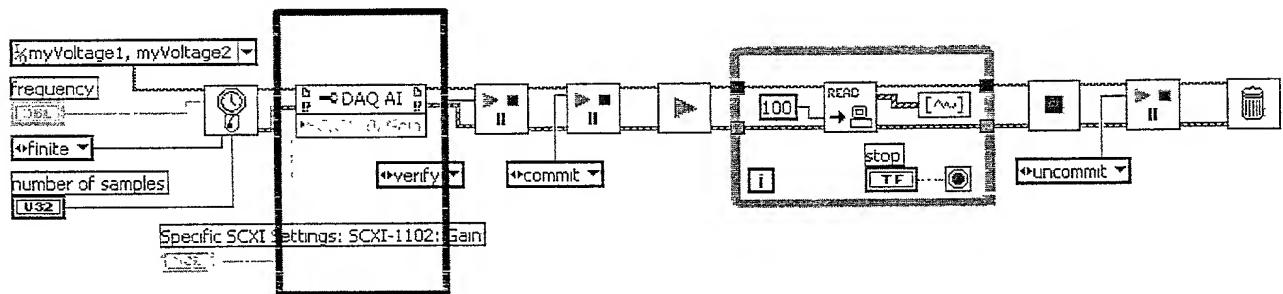
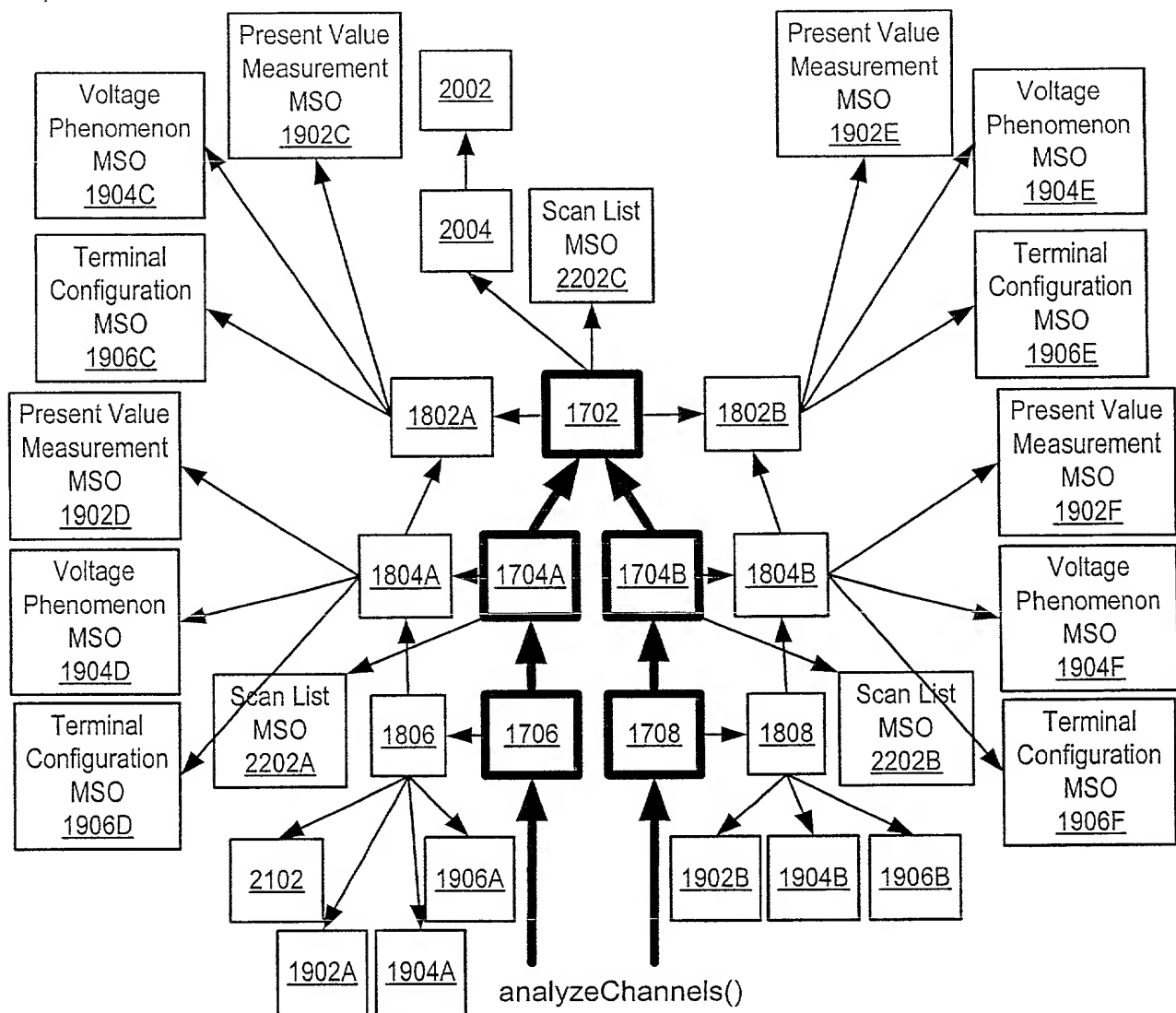


Figure 21



Analyze Channels

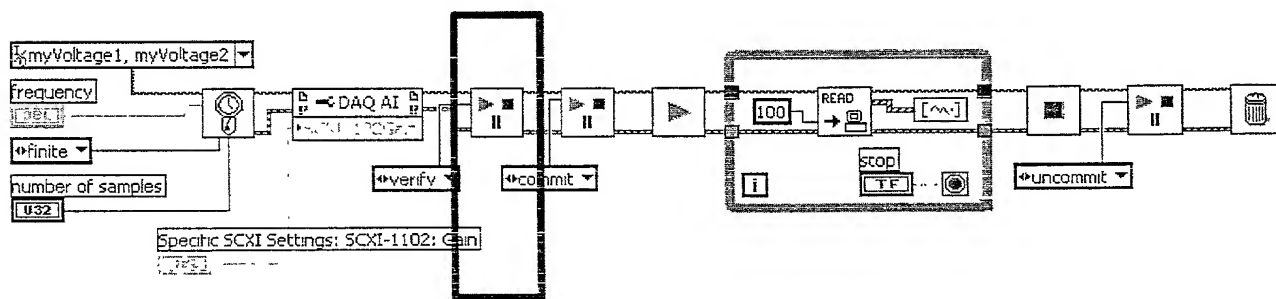
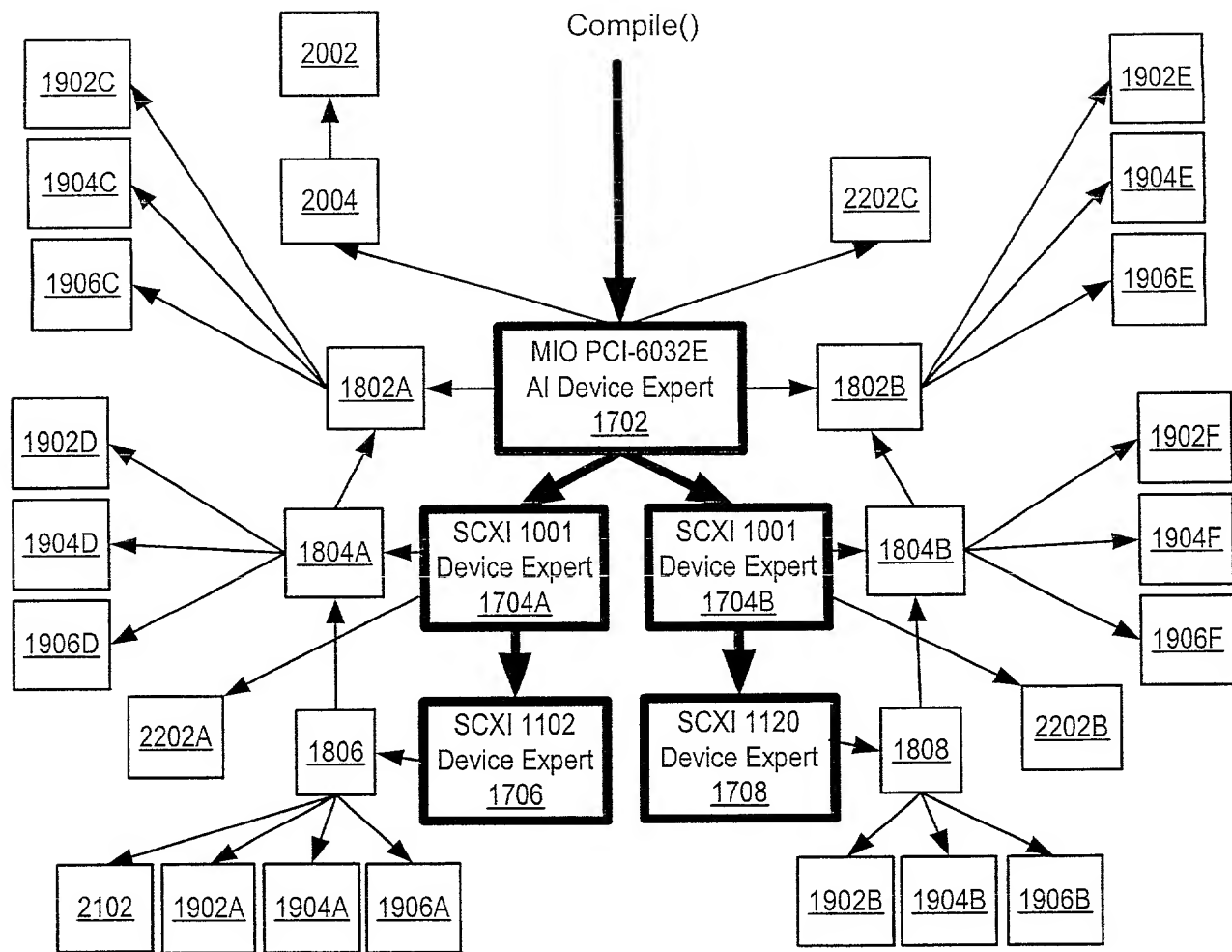


Figure 22







Compile

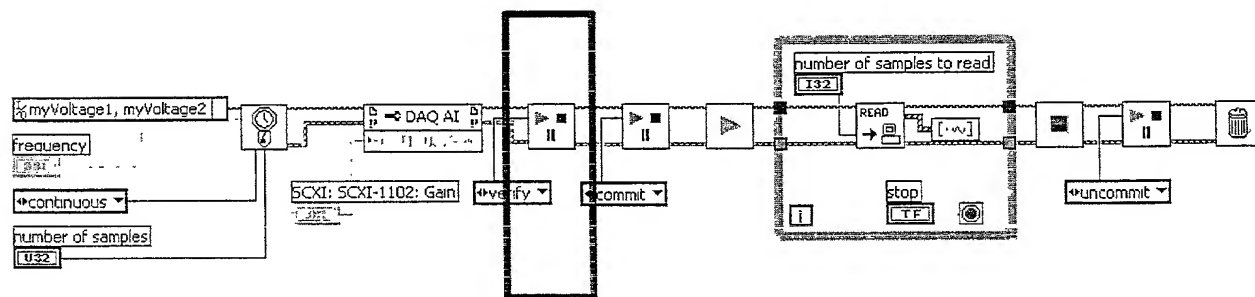
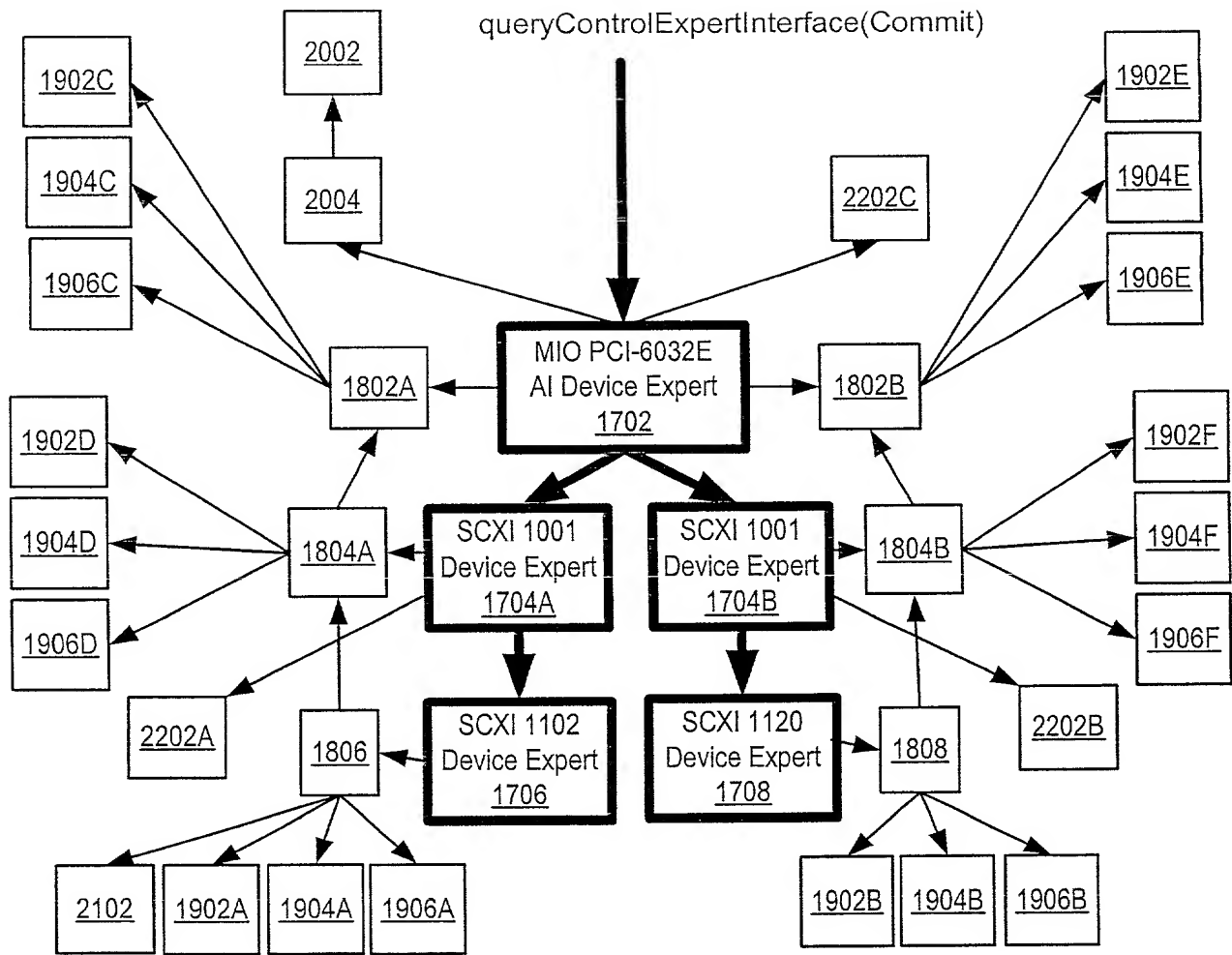


Figure 24A



Commit

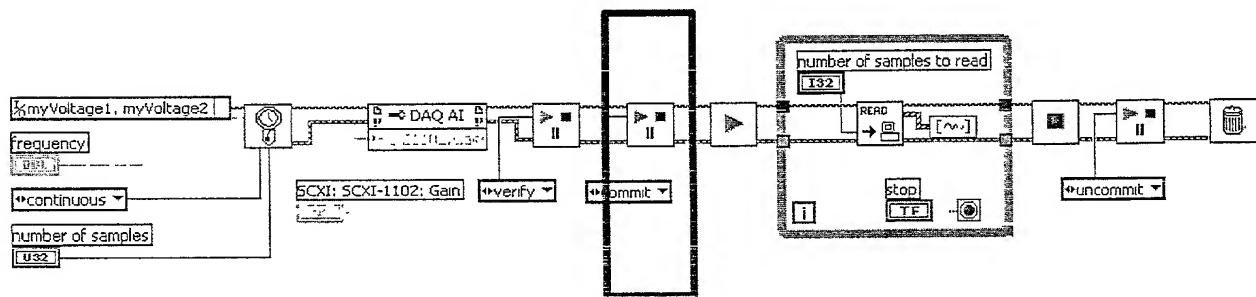
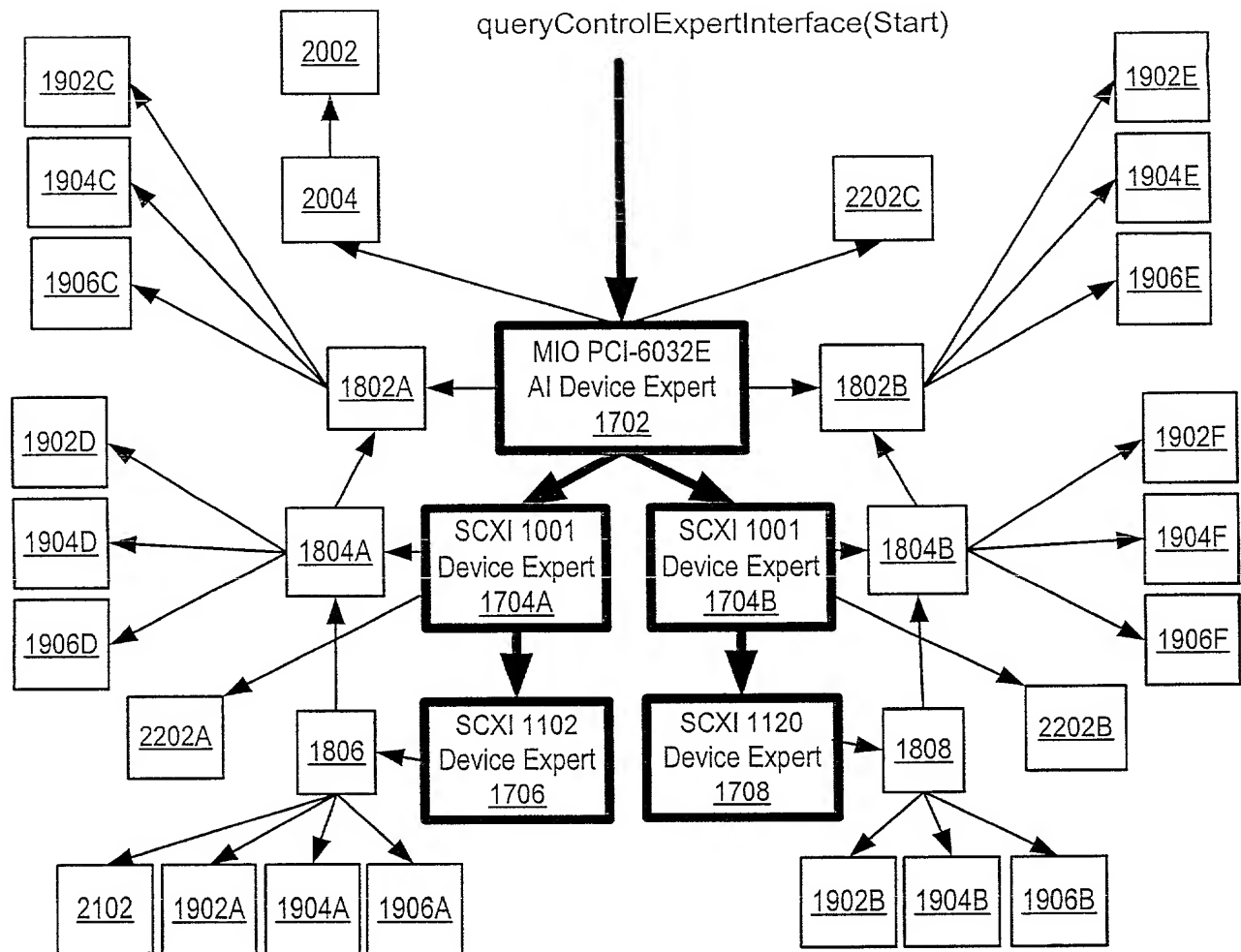


Figure 24B



Start

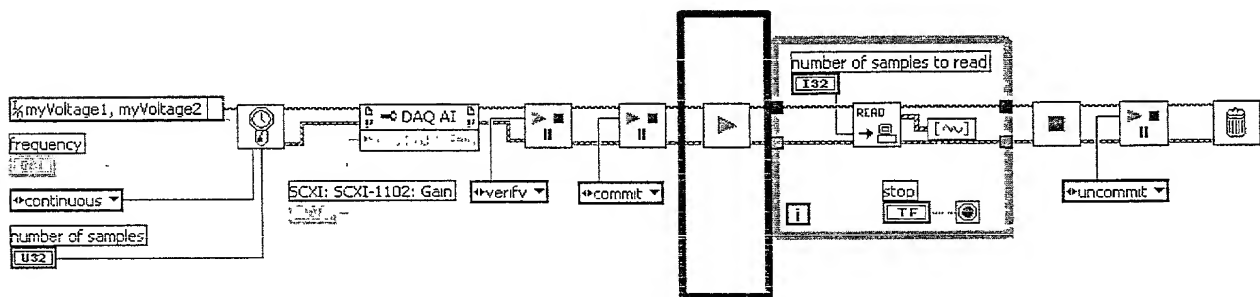
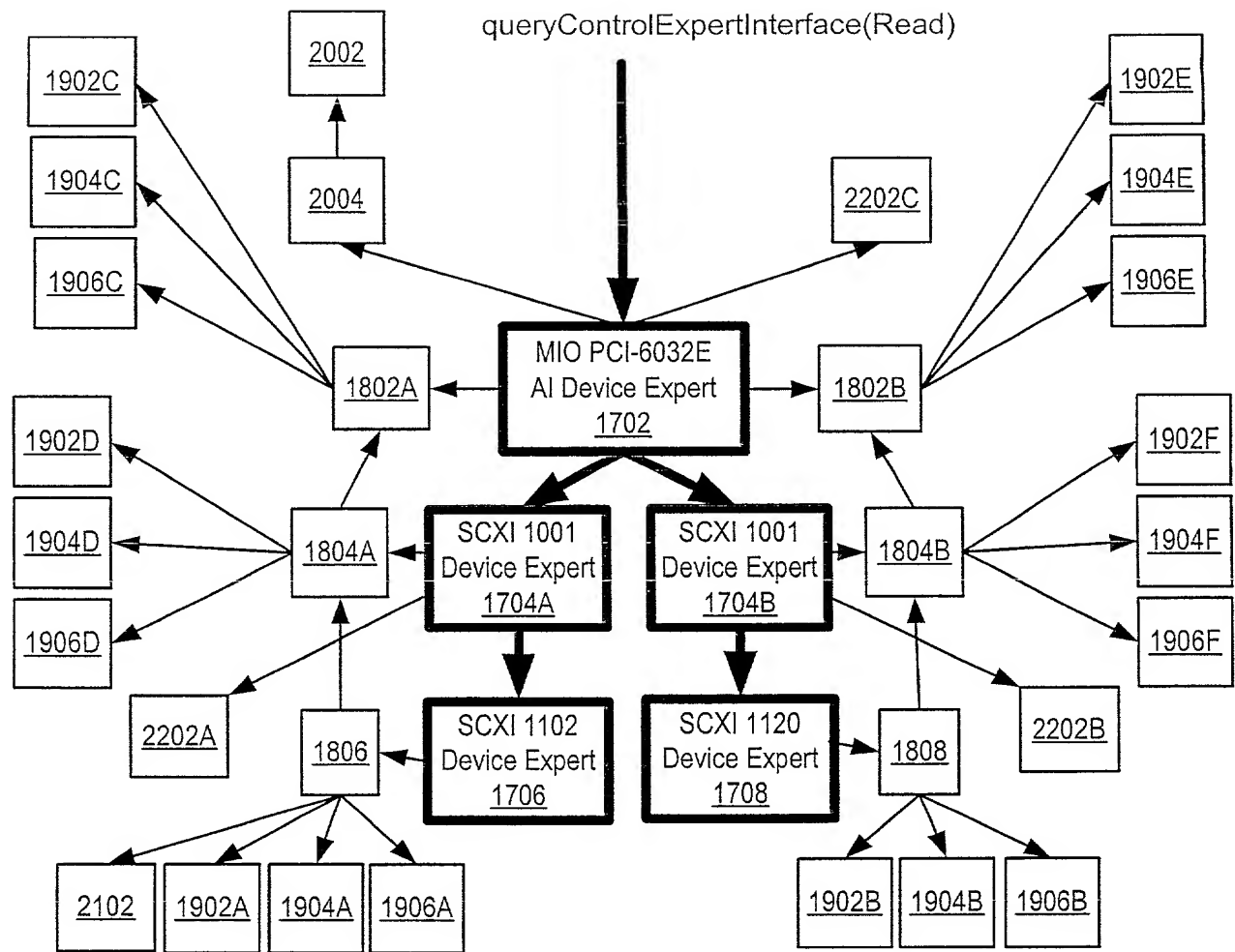


Figure 24C



Read

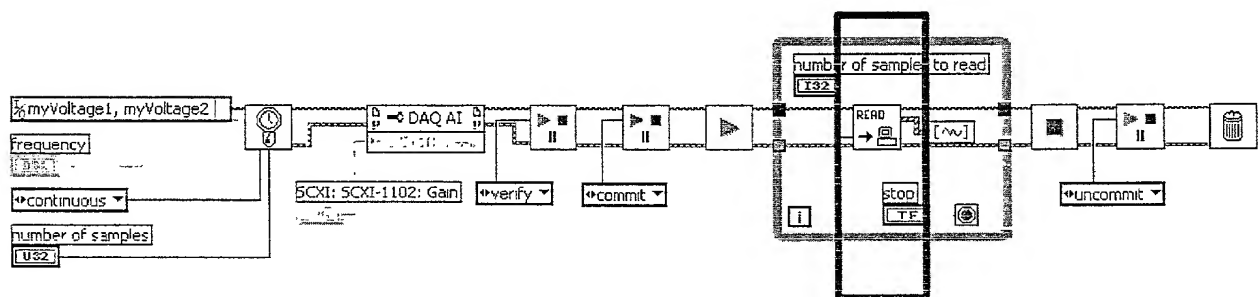
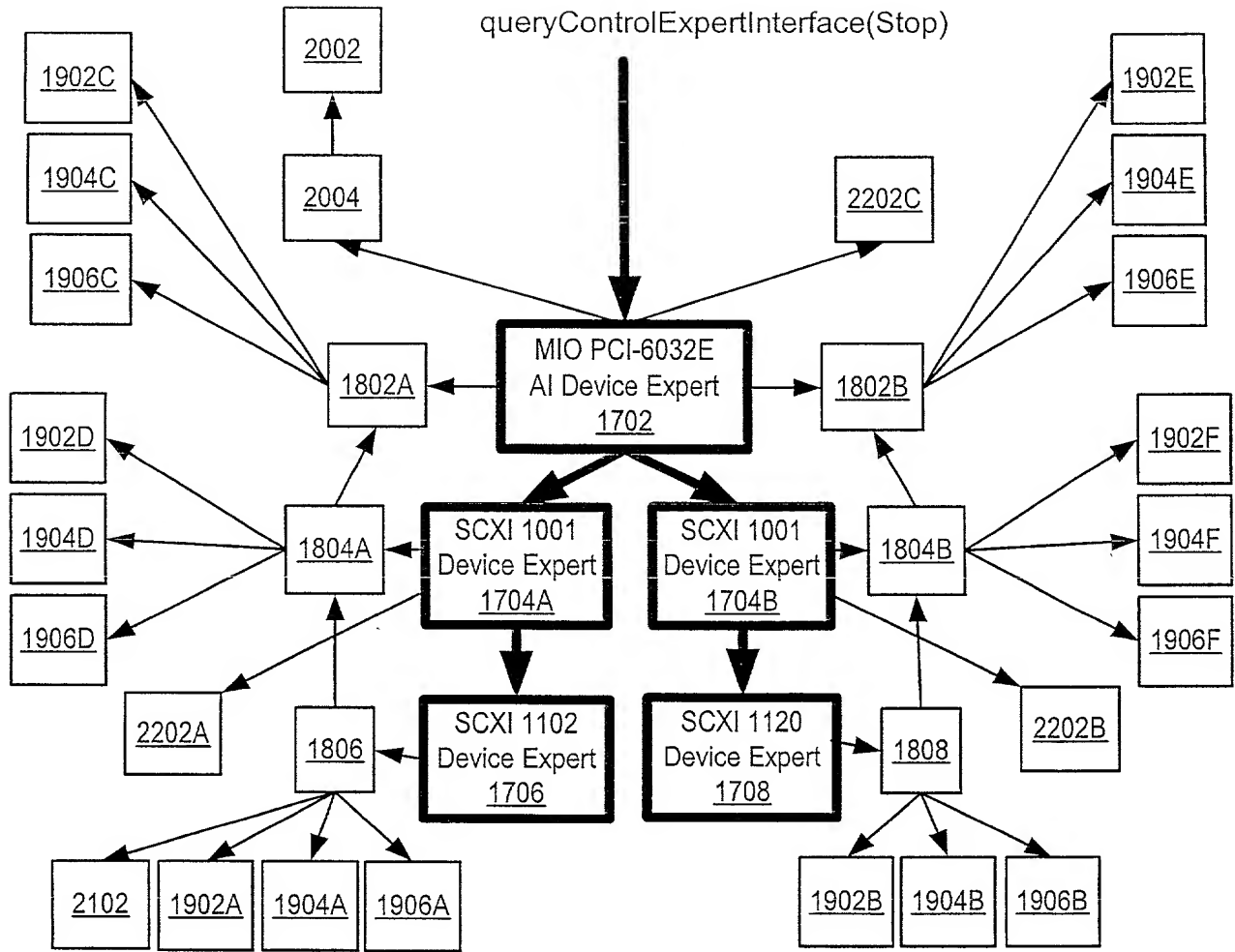


Figure 24D



Stop

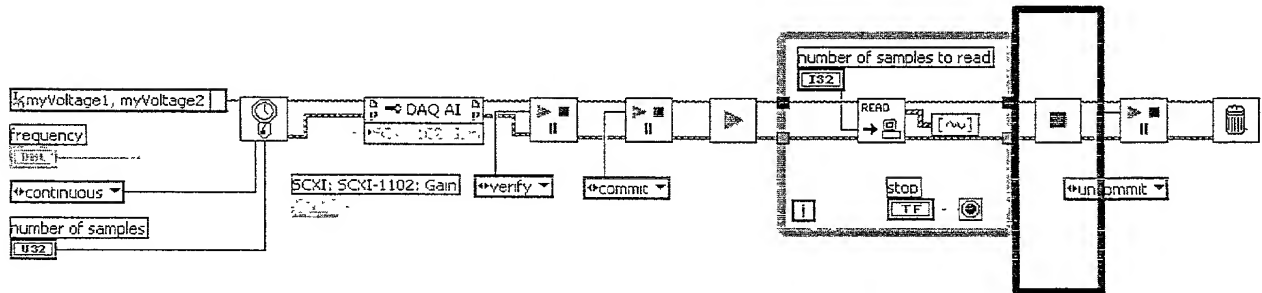
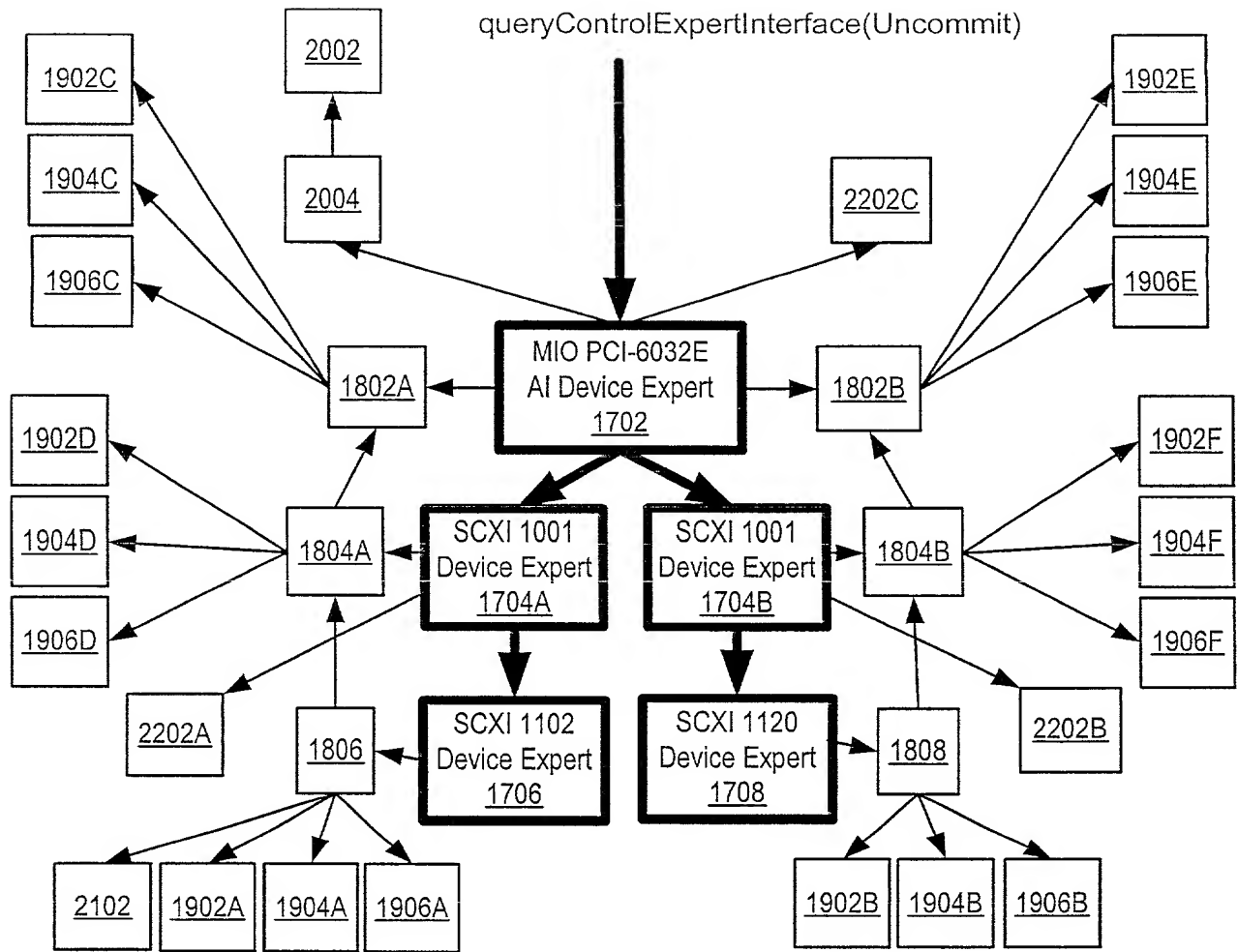


Figure 24E



Uncommit

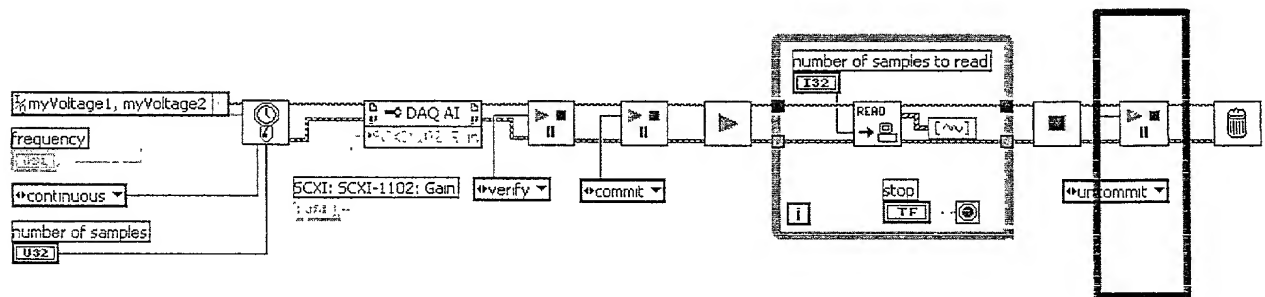


Figure 24F

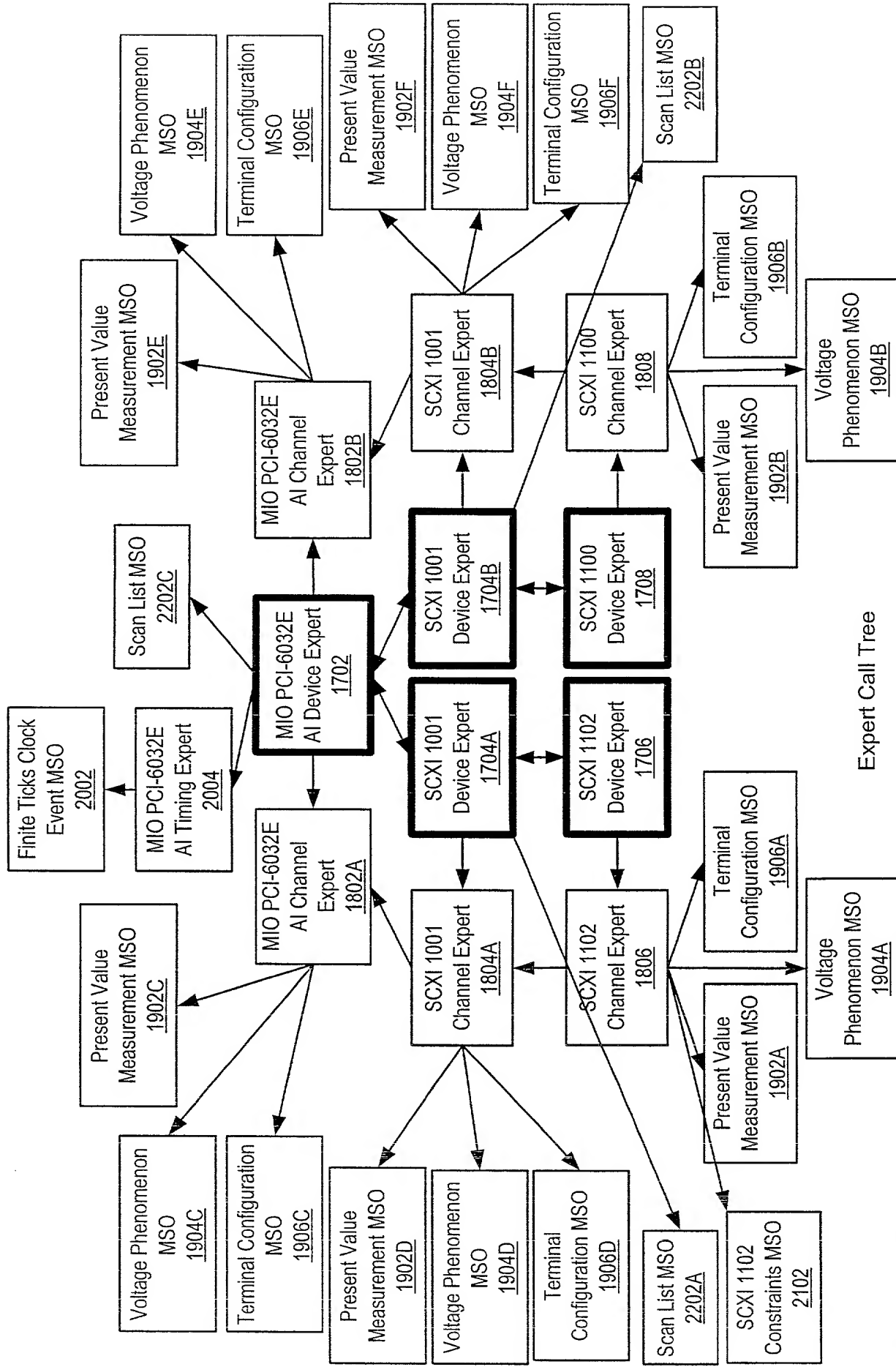


Figure 25 Use Case: Multi-Chassis SCXI Finite Acquisition Using An MIO

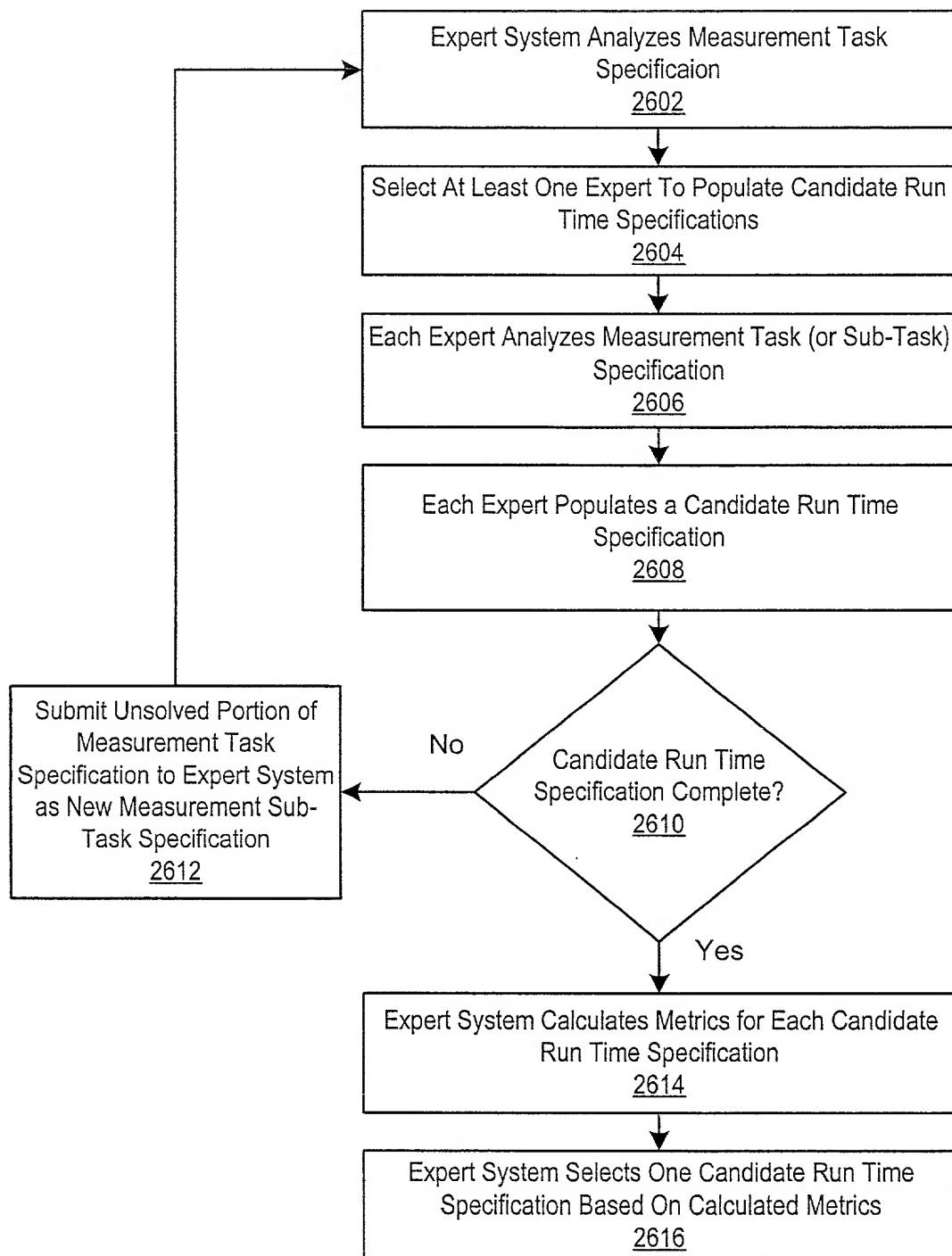


Figure 26



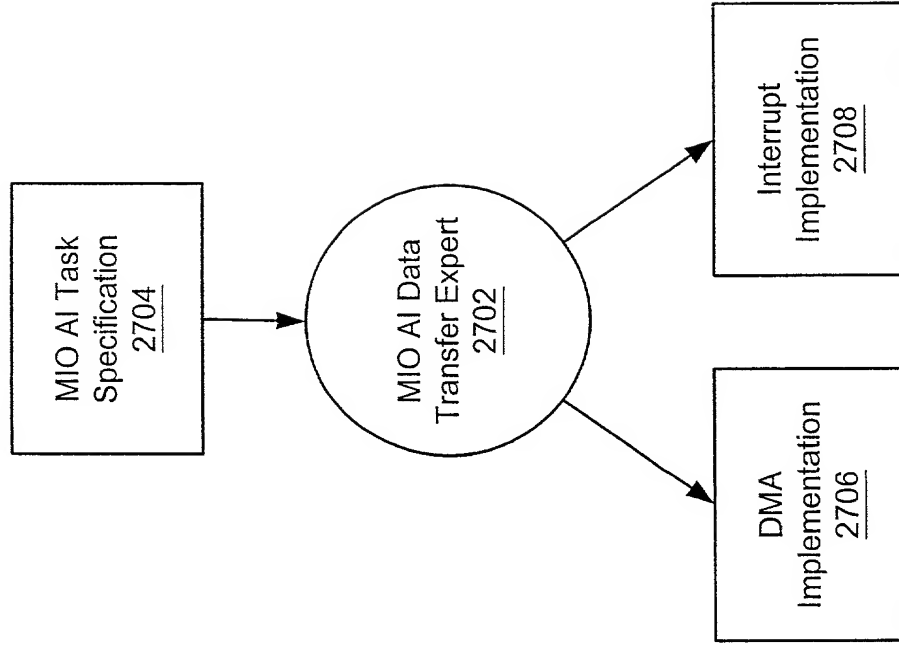


Figure 27

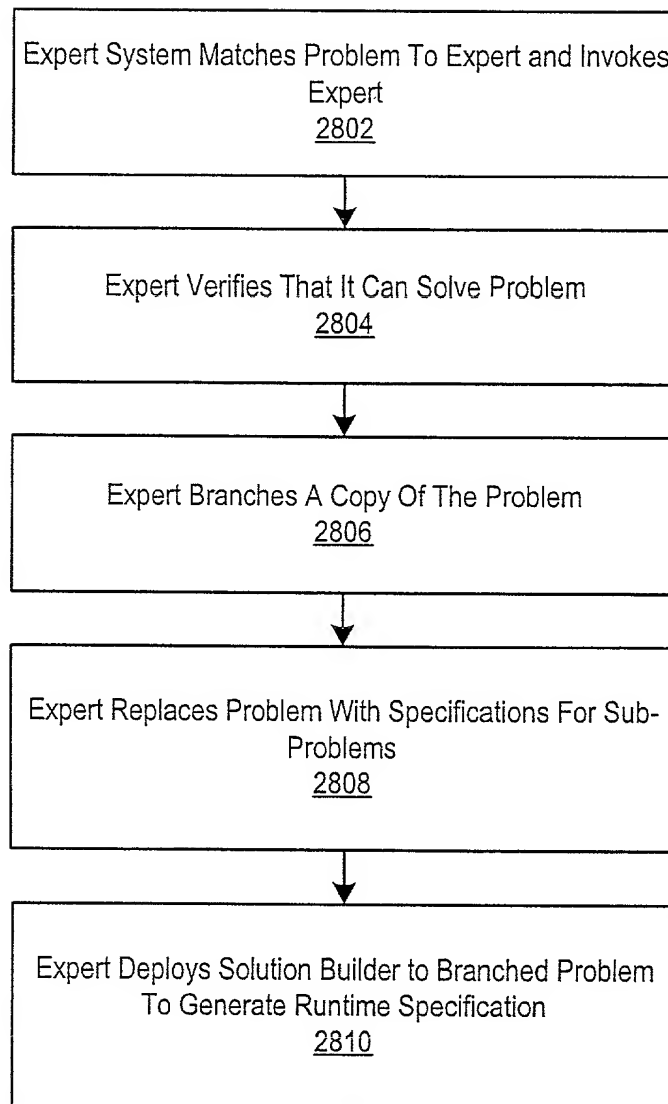


Figure 28

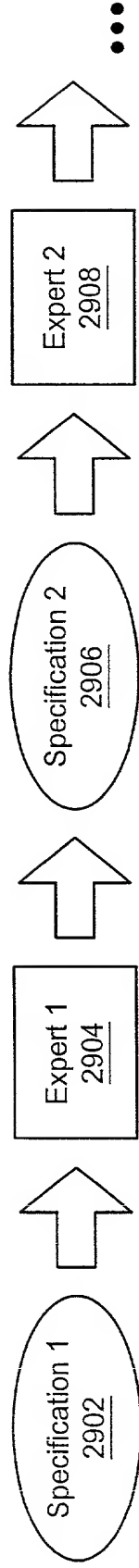


Figure 29

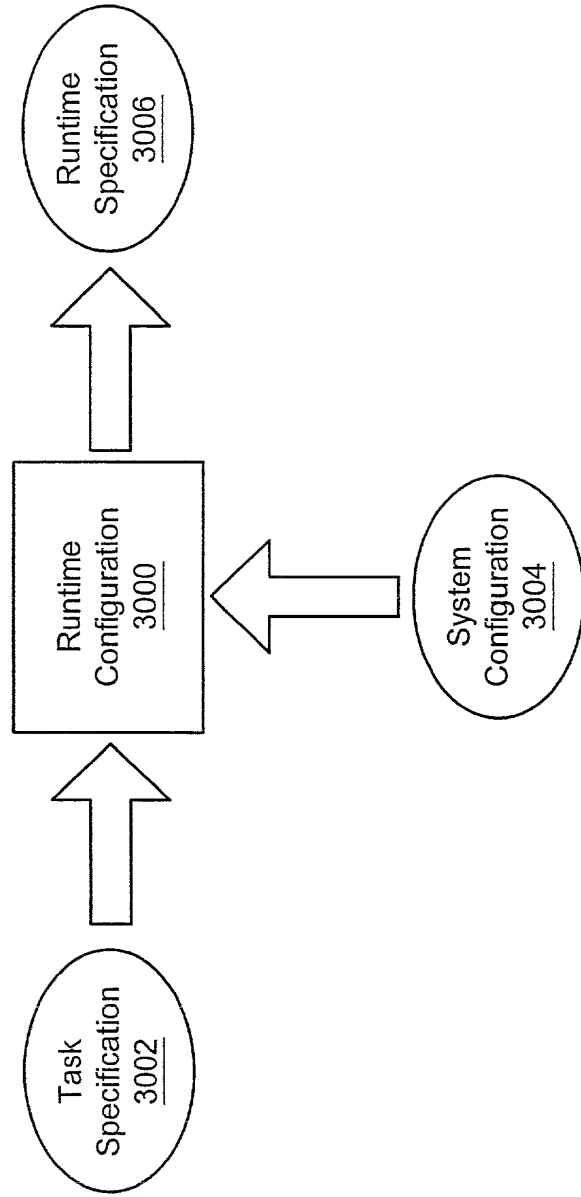


Figure 30

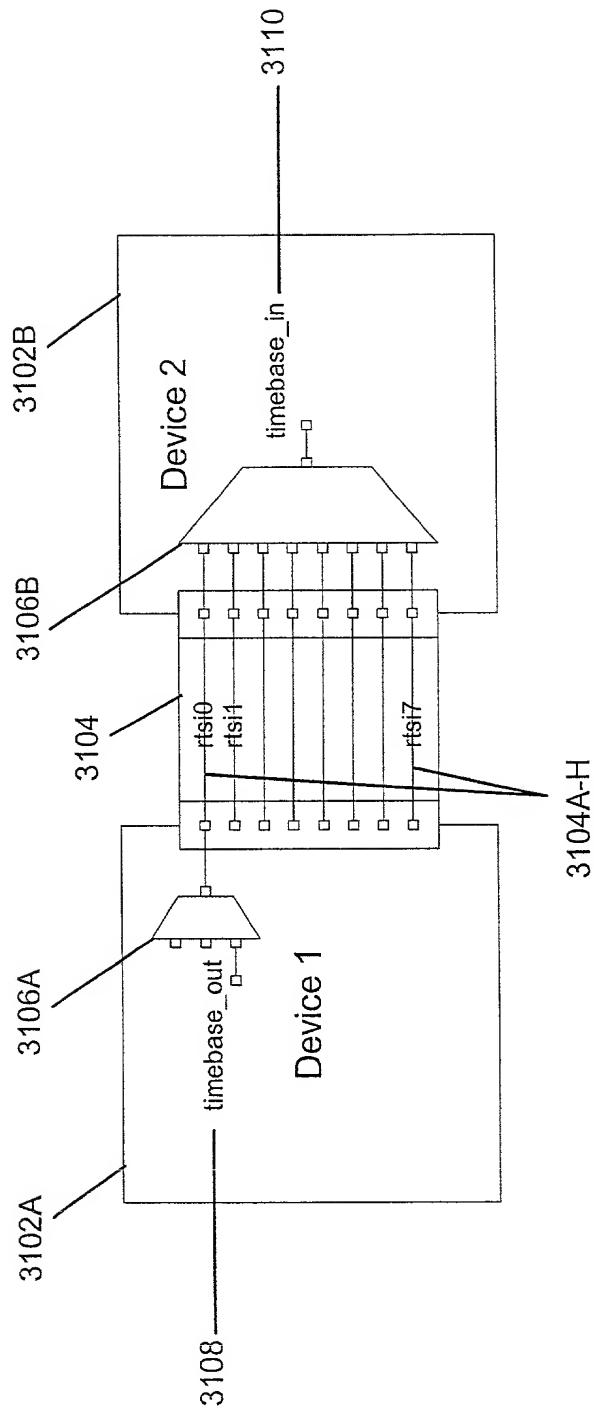


Figure 31

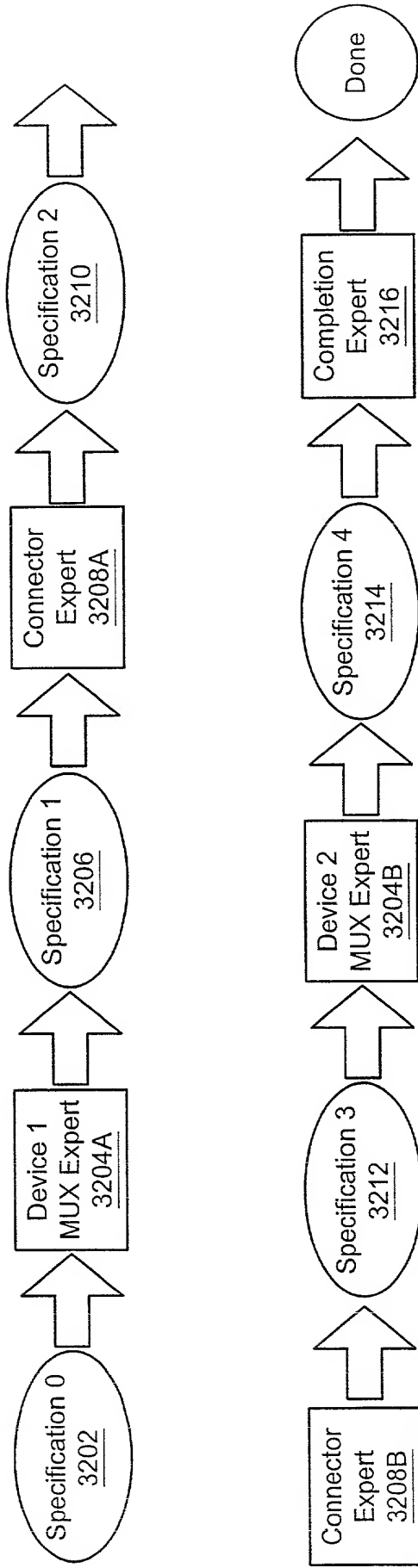


Figure 32

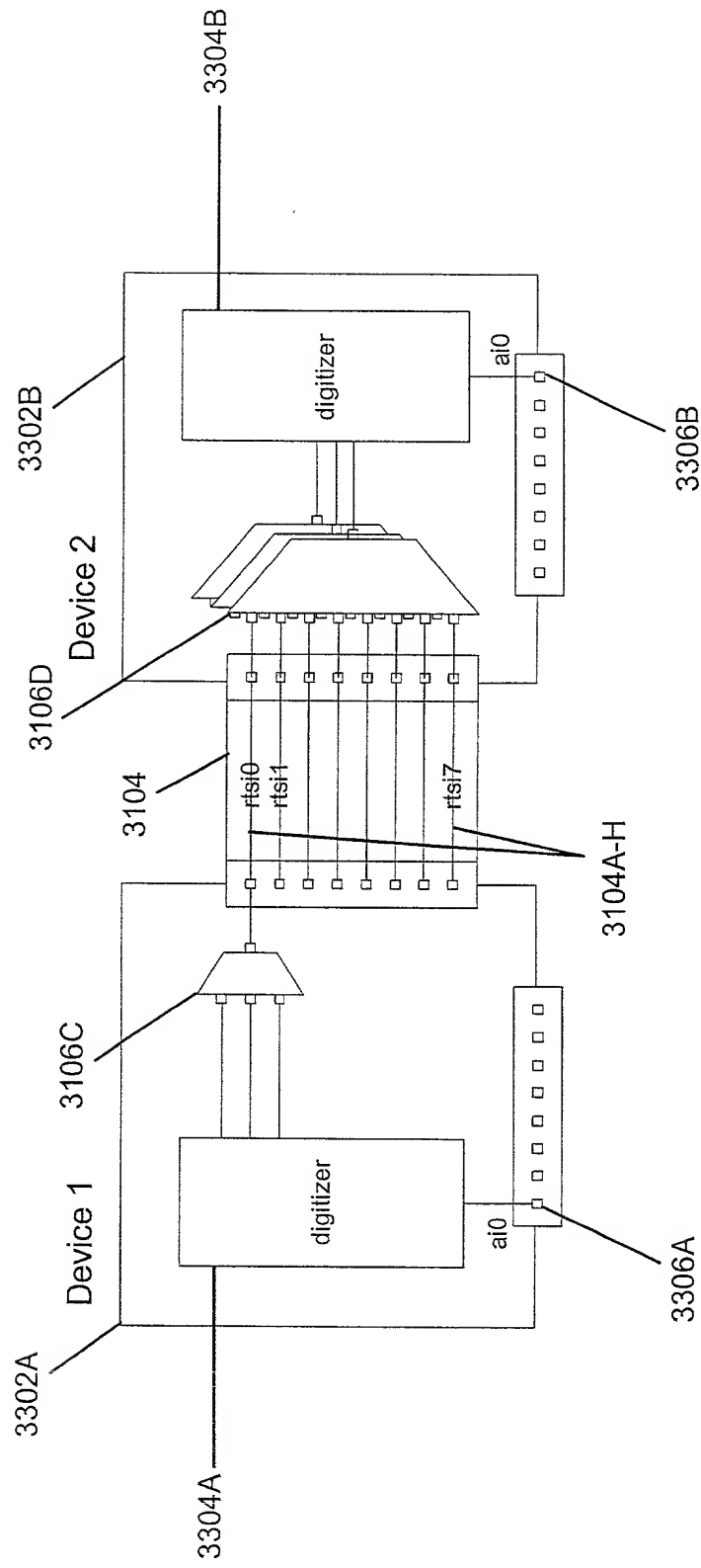


Figure 33





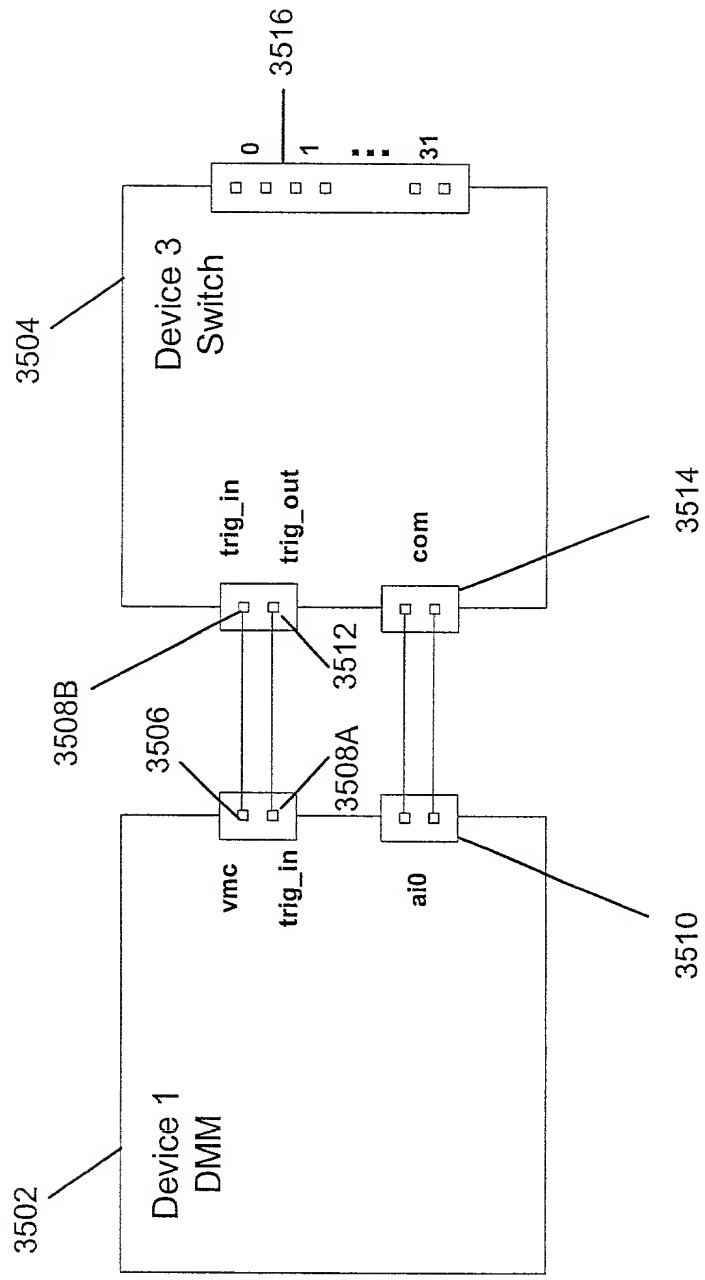


Figure 35

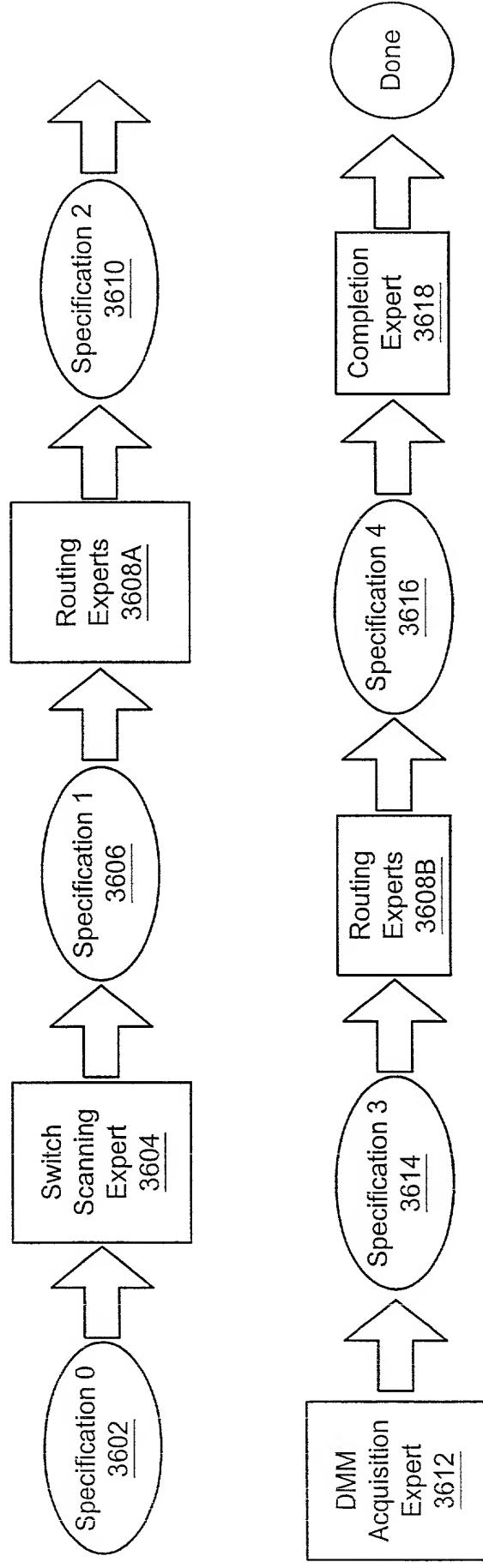


Figure 36

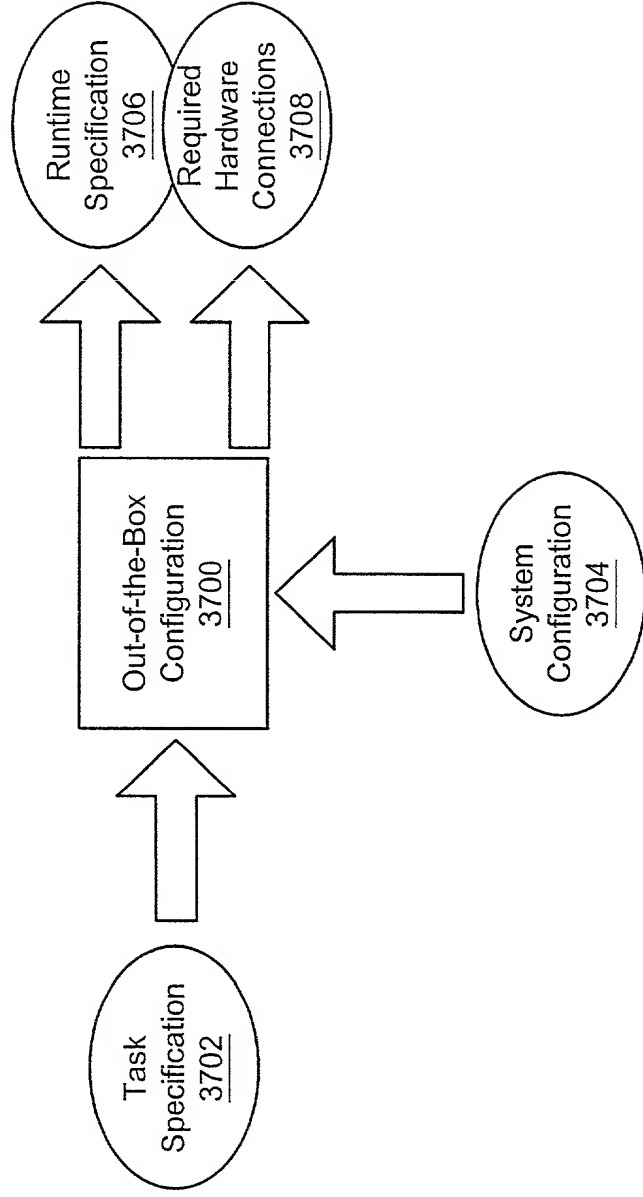


Figure 37

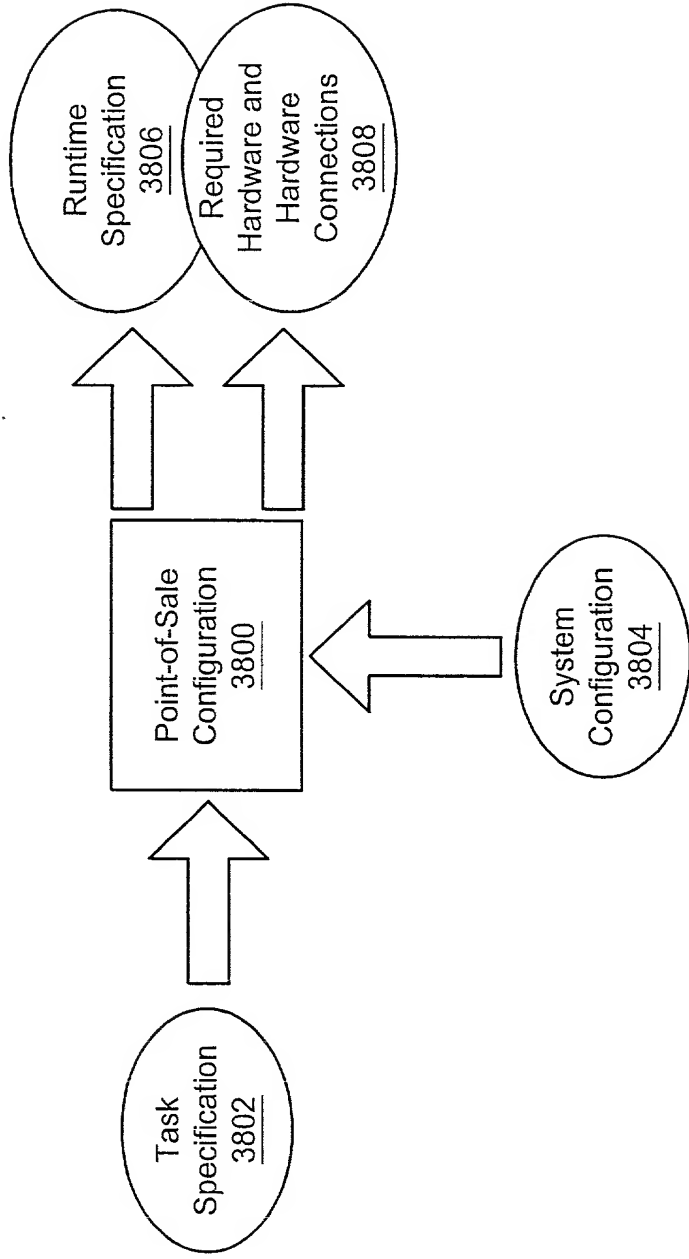
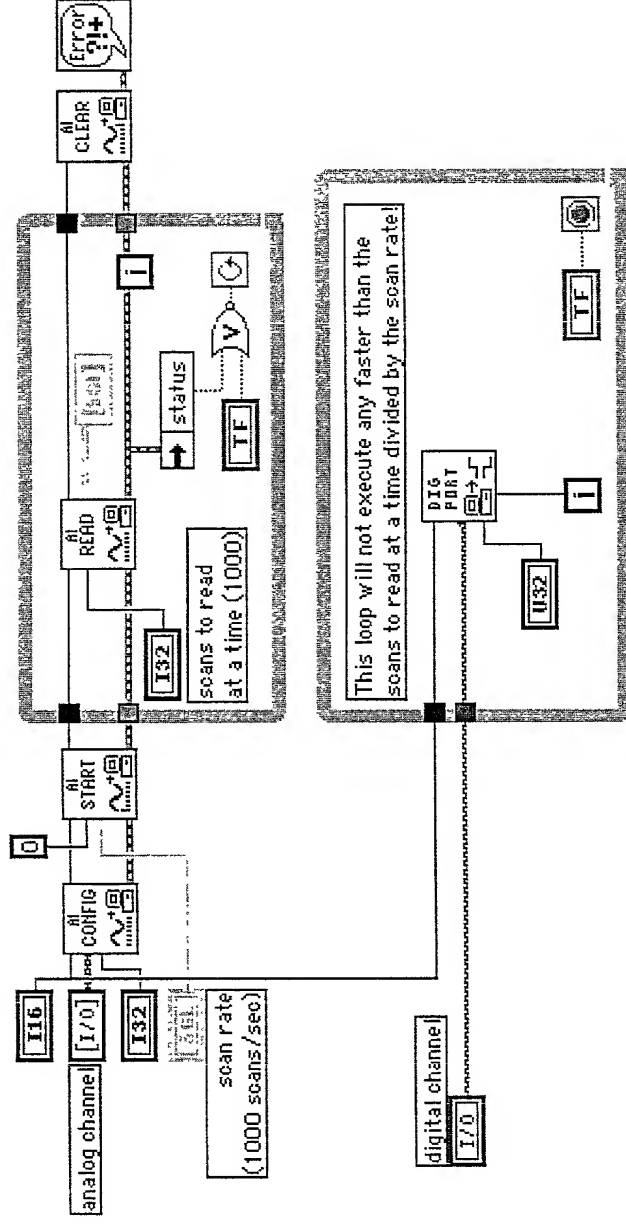
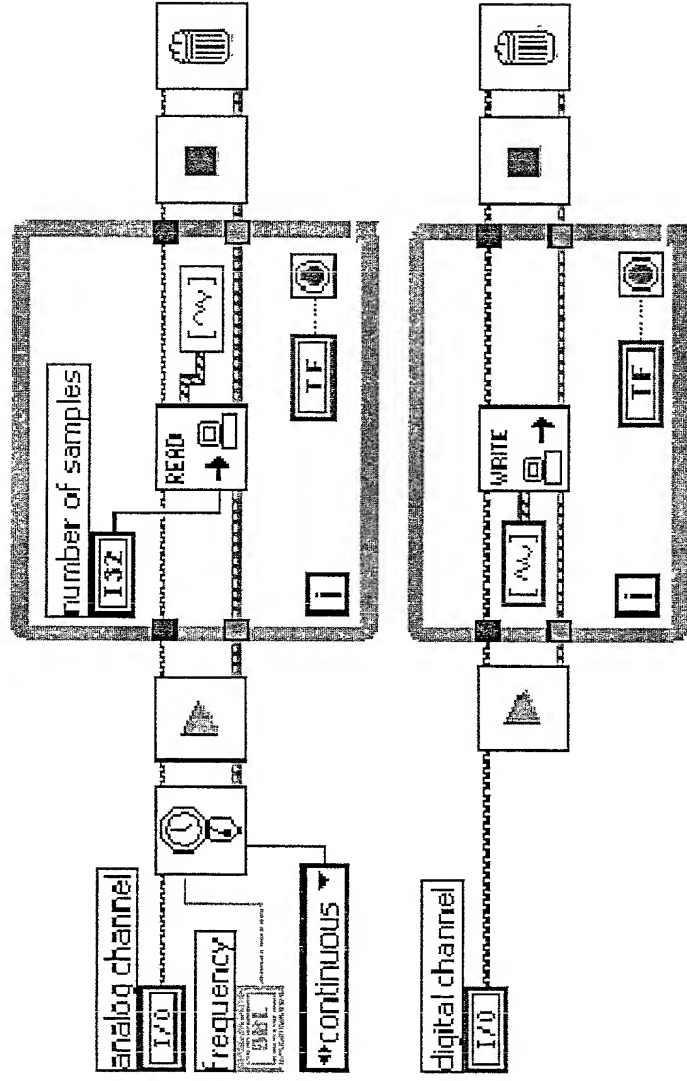


Figure 38



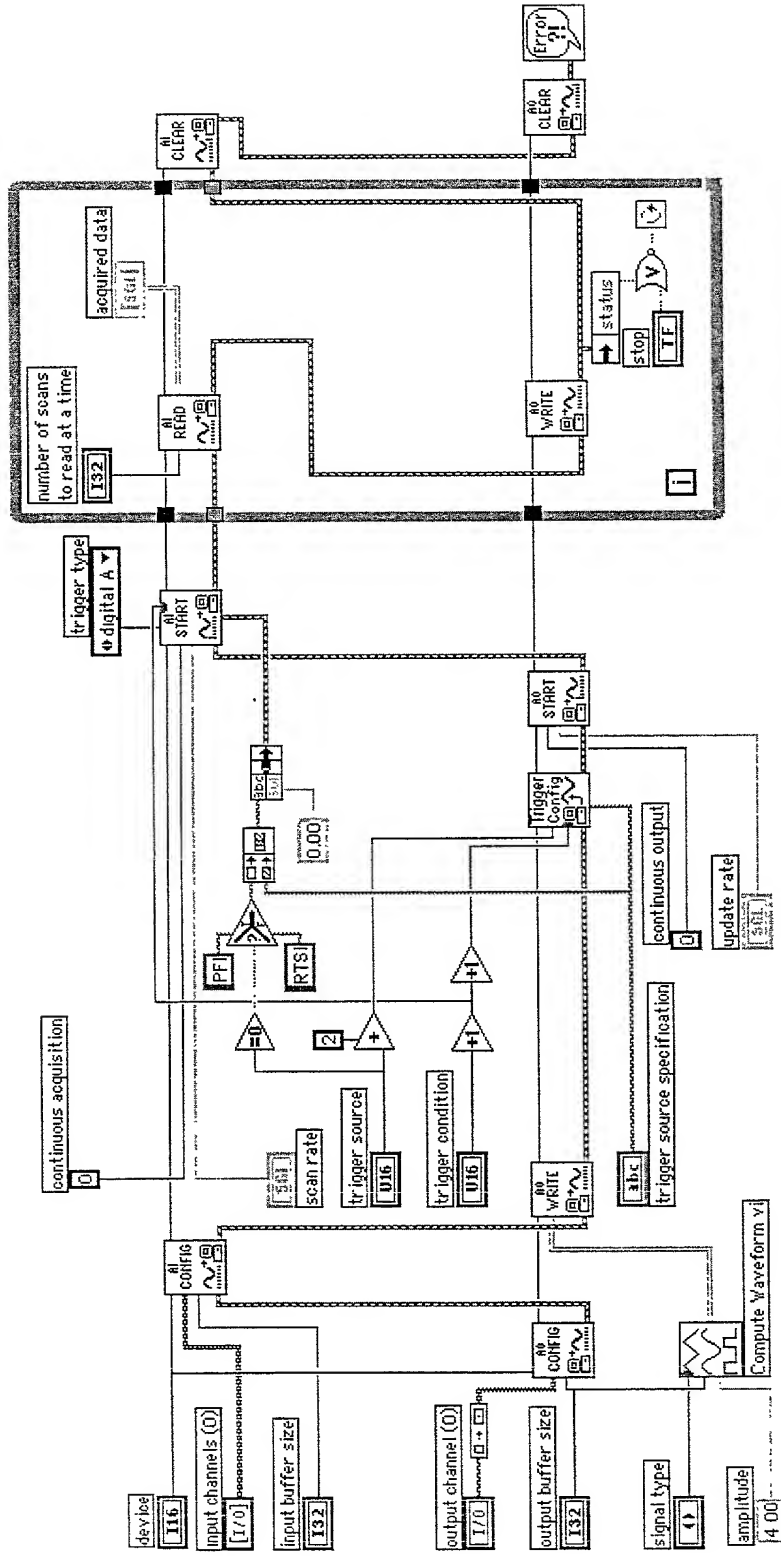
Simultaneous Buffered Analog Input And Single Point Digital Output With Single-Threaded Driver (Prior Art)

Figure 39A (Prior Art)



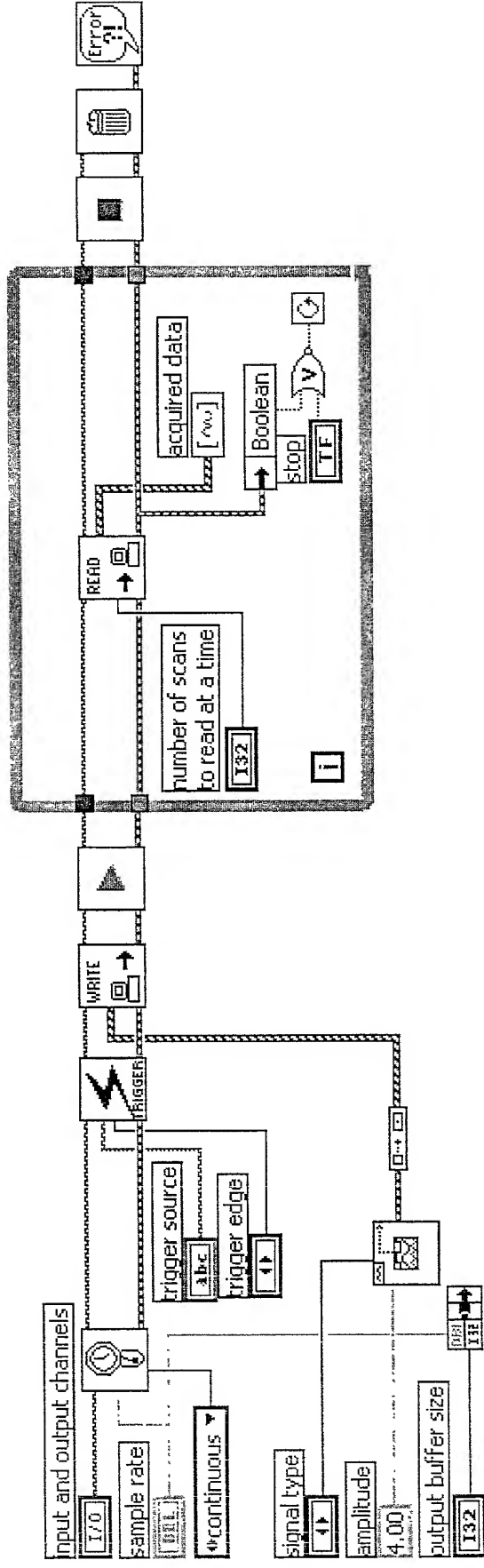
Simultaneous Buffered Analog Input And Single Point Digital Output With Multi-Threaded Driver

Figure 39B



Simultaneous Triggered Buffered A/AO (Prior Art)

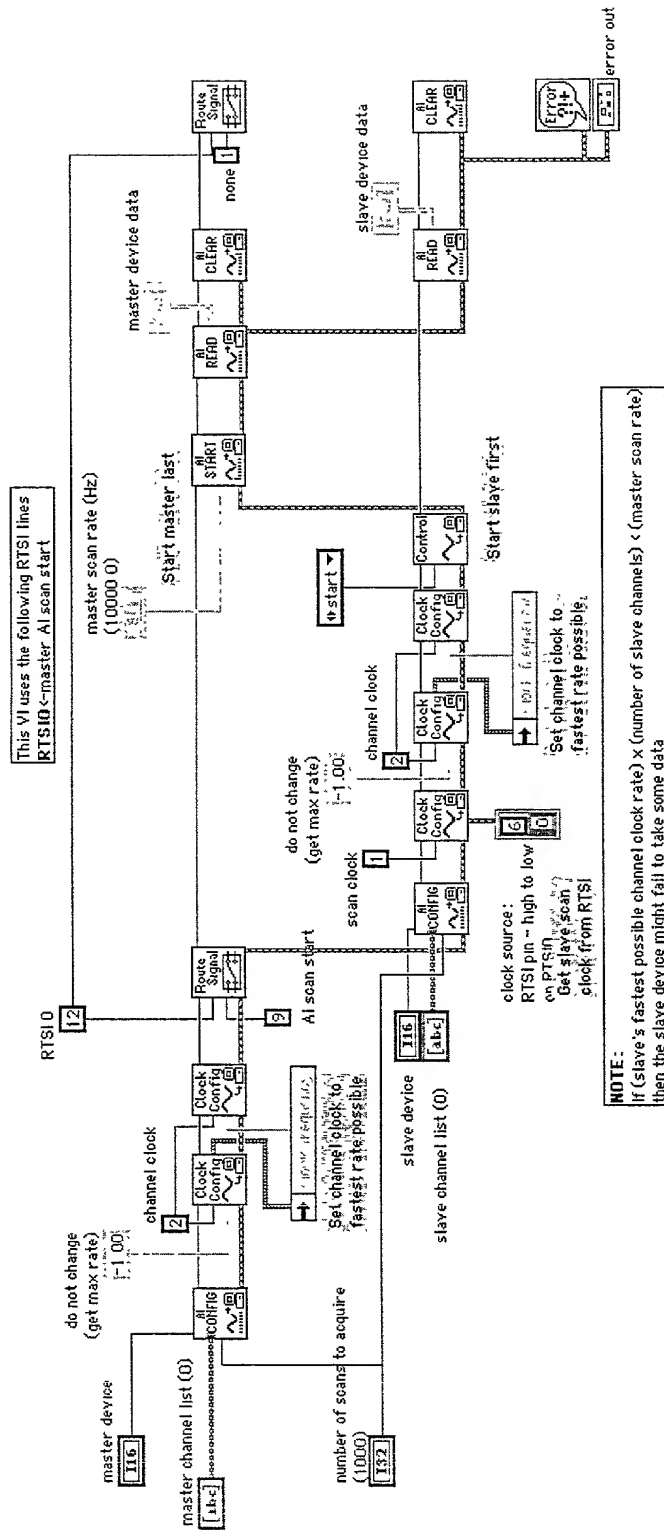
Figure 40A



Simultaneous Triggered Buffered AIO

Figure 40B

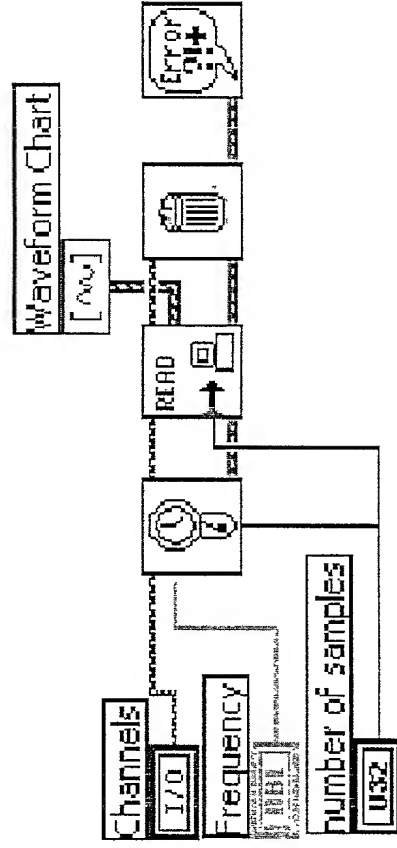




Sharing Scan Clock Across Two E-Series Devices (Prior Art)

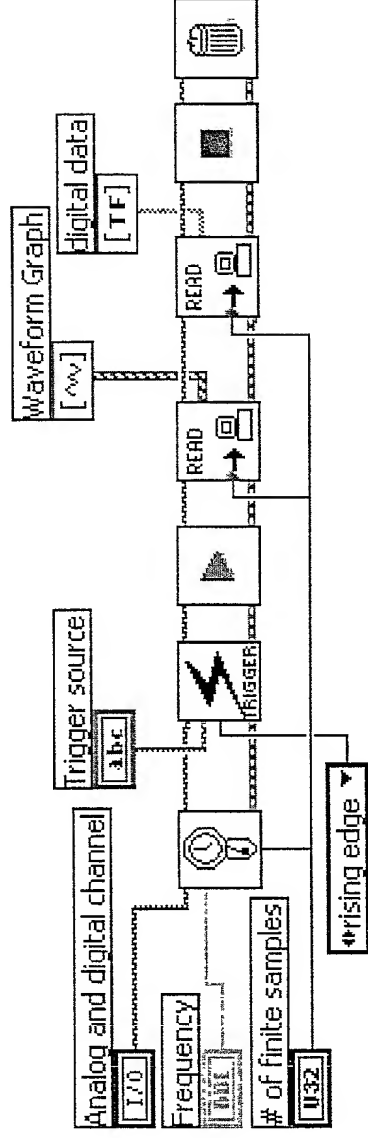
Figure 41A

When the data is read from the device, the data is stored in the buffer and the device is ready to be read again.



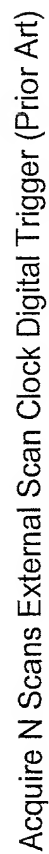
Sharing Scan Clock Across Two E-Series Devices

Figure 41B



Sharing Clock And Trigger, Buffered AI & DI

Figure 42



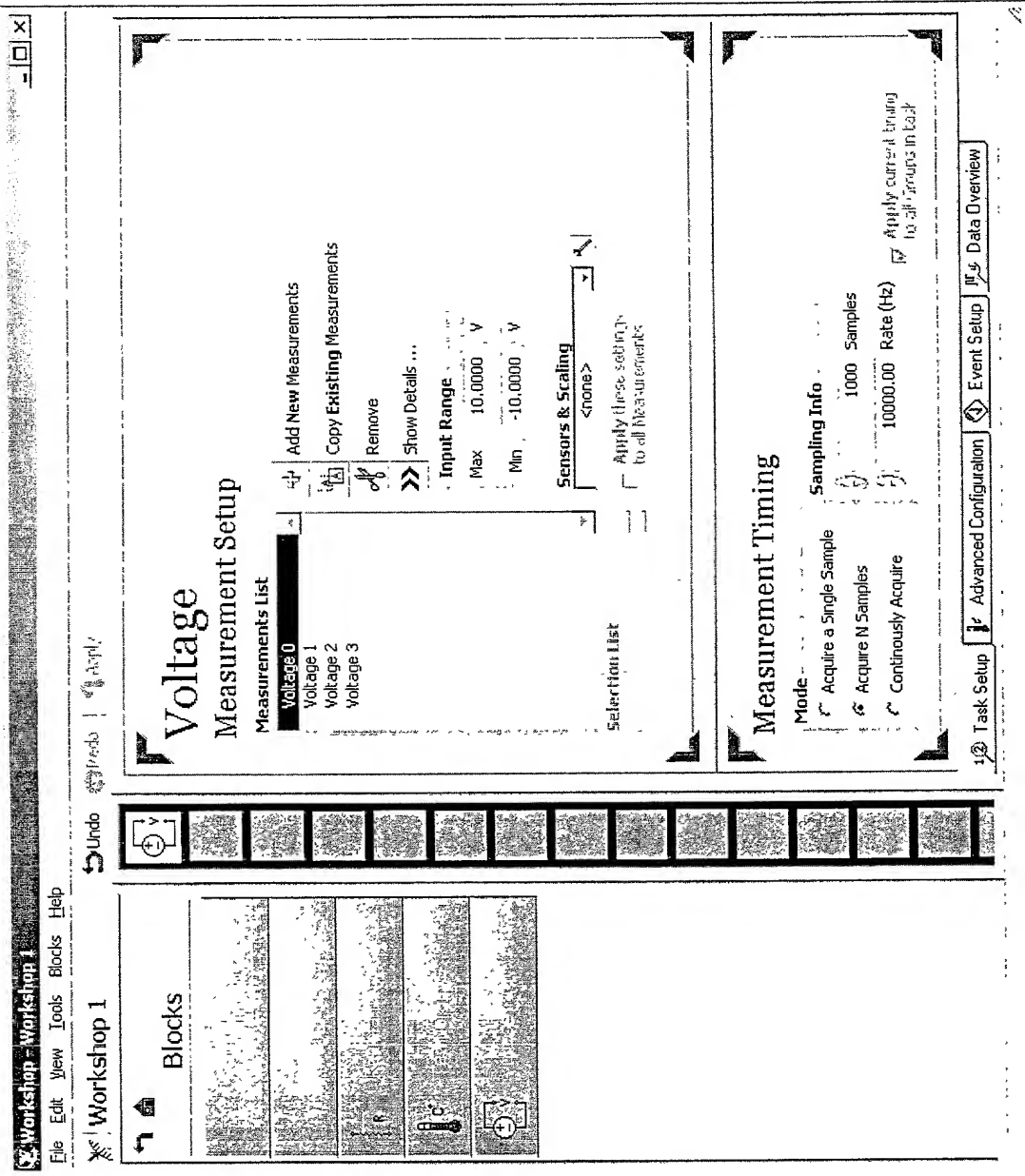


Figure 43B

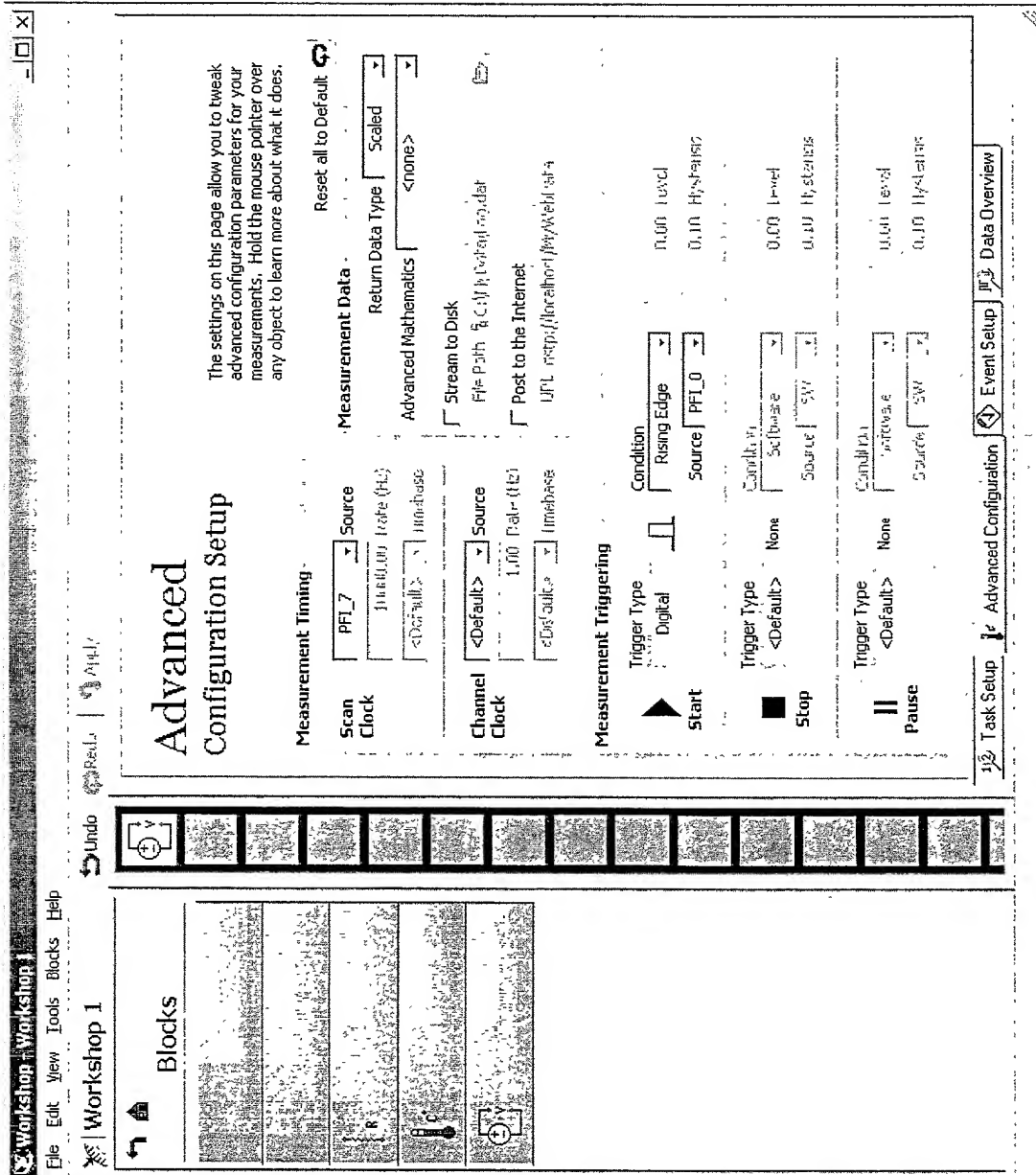
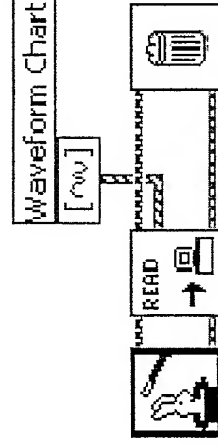


Figure 43C

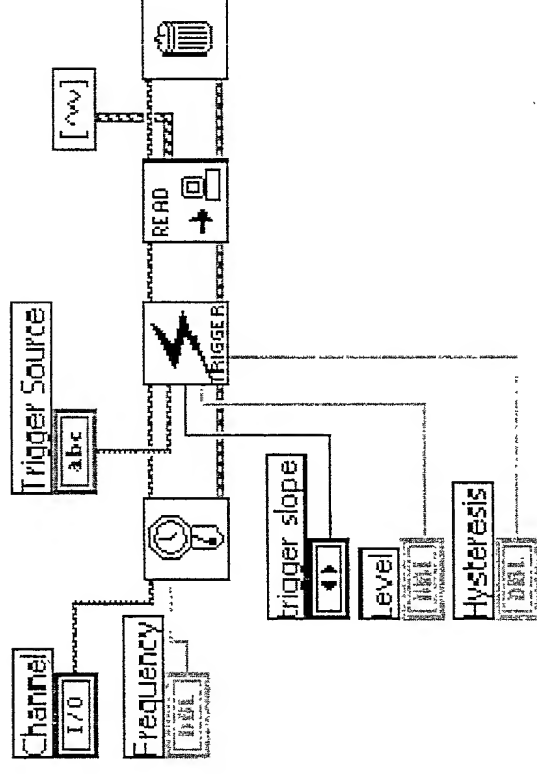


Acquire N Scans External Scan Clock Digital Trigger

Figure 43D

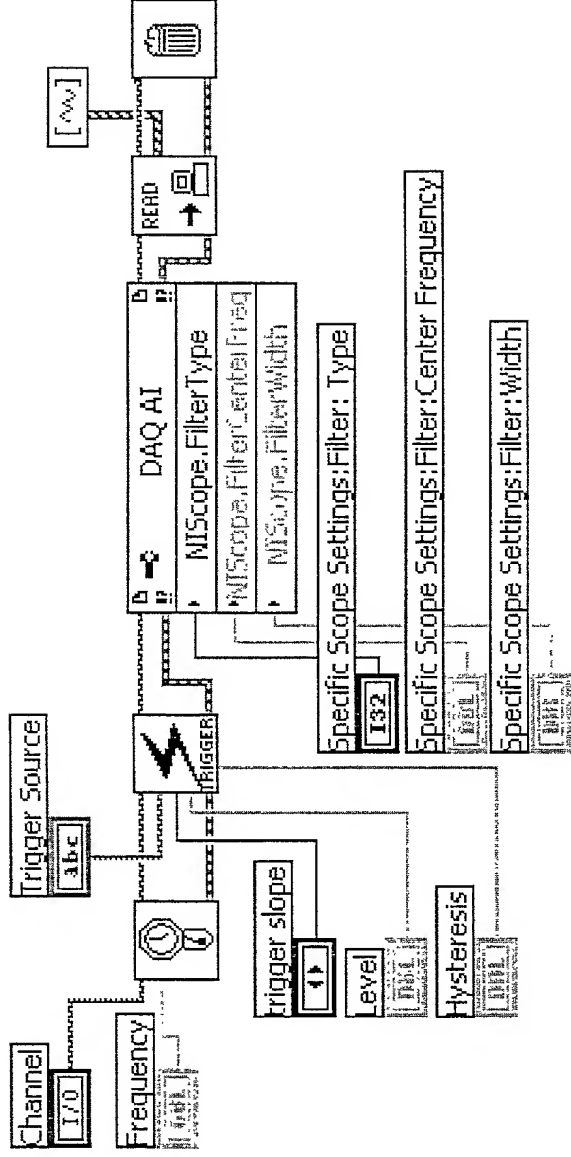






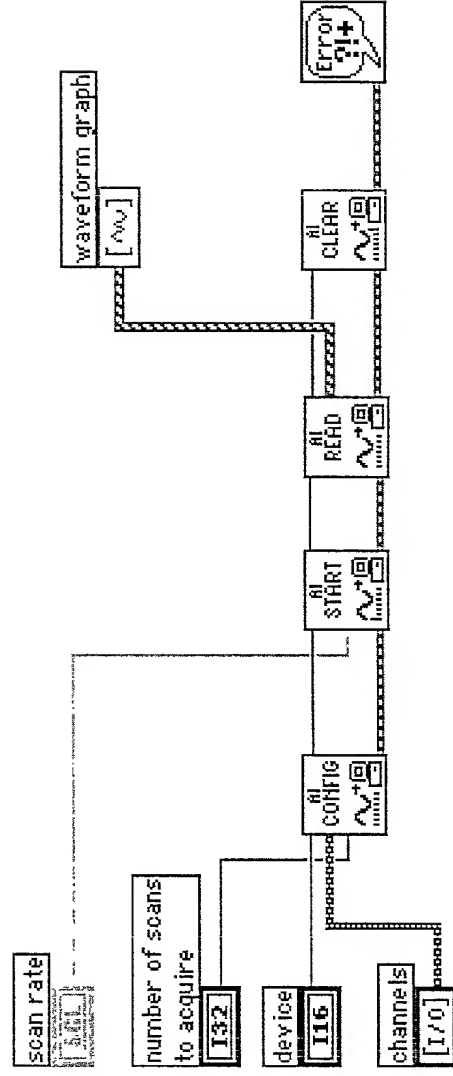
## Triggered Acquisition With High Speed Digitizer

Figure 44B



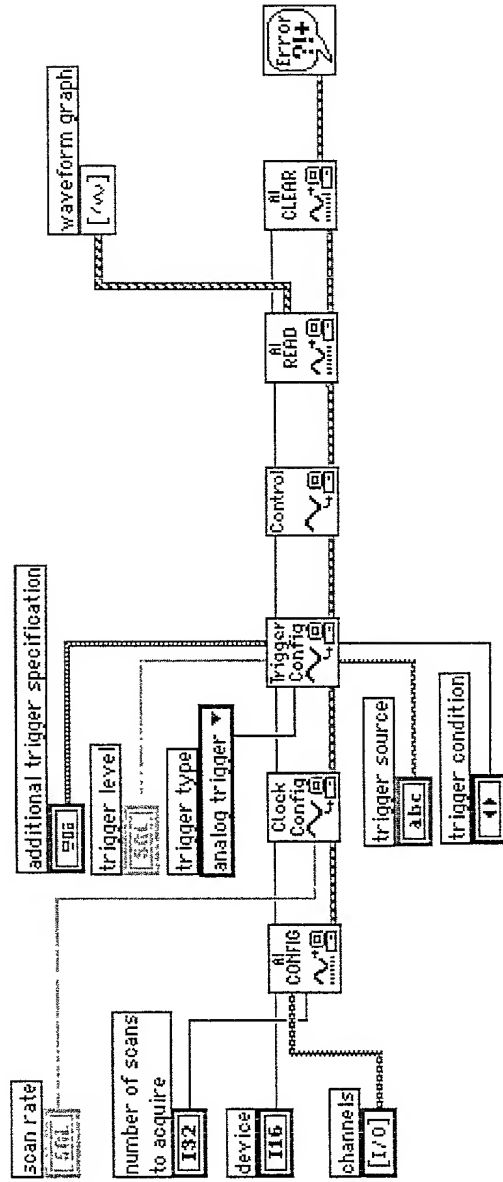
Triggered Acquisition With High Speed Digitizer With Filtering

Figure 44C



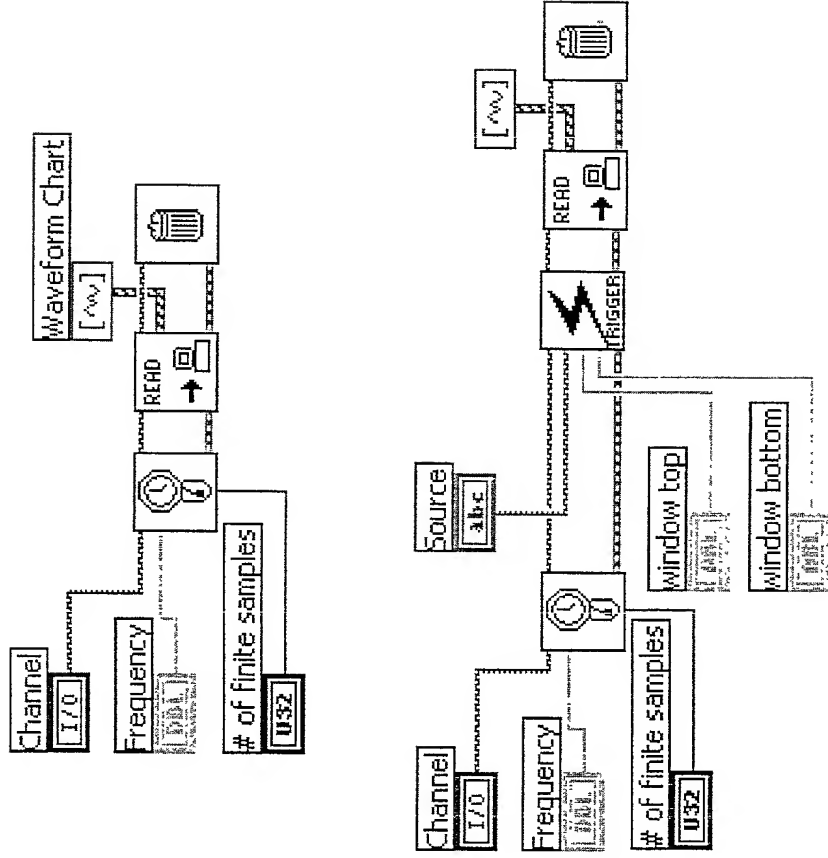
Intermediate Layer (Prior Art)

Figure 45A



Changes For Analog Window Triggering (Prior Art)

Figure 45B



Analog Window Triggering

Figure 45C